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THE

NORTHWESTERN MILLER

A Weekly Record of Current Milling Events, and Journal of the Flour and Grain Trades.

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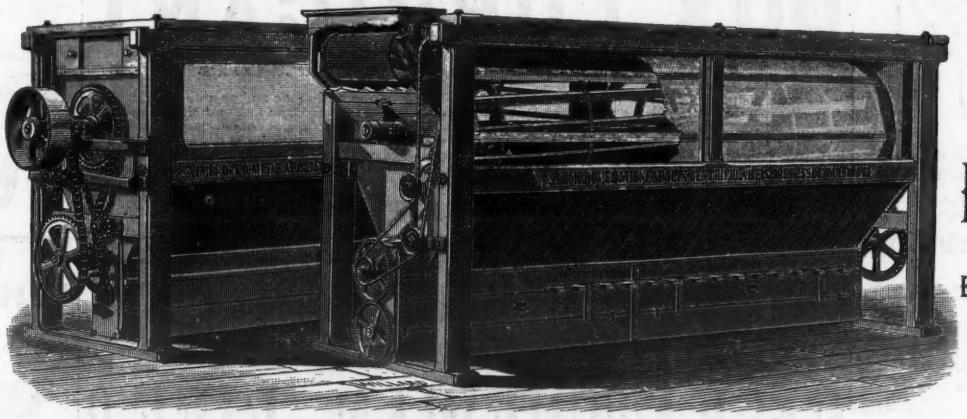

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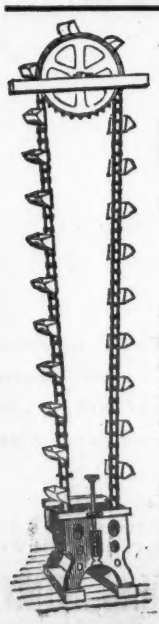

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Send for our 16-page pamphlet giving the full history of the wheat. W. J. ABERNETHY & CO., originators and proprietors, No. 4 Washington Avenue South, Minneapolis.

P. S.—The firm of W. J. Abernethy & Co., owns three-fourths of all the pure Saskatchewan Fife wheat in the market to-day. They refer by permission to the following parties as to their standing and credibility: The Hennepin County Savings Bank, Minneapolis; The Bank of Minnesota, St. Paul; C A. Pillsbury & Co., Minneapolis, and Washburn, Crosby & Co., Minneapolis.

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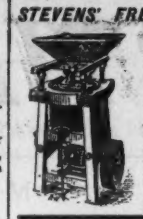

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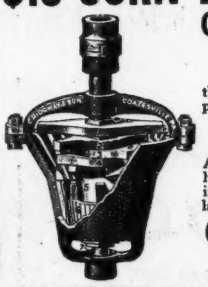

The Best Machine in the Market for the Purpose.

Simple, Durable,

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—AND—

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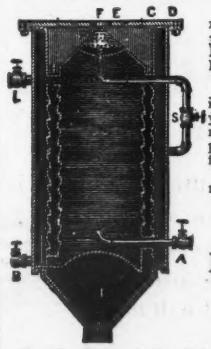

Patented Sept. 27, 1870. Re-issued Aug. 31, 1880. Re-issued May 17, 1881. Patented Feb. 28, 1882.

Millers please examine these patents, and you will see all other machines used for this purpose are direct infringements.

I am also patentee and manufacturer of

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ROLLER MILLS

For Making Flour.

For Circulars and New Price List, address

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For Further Particulars Write and we will tell you all about it.

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LINCOLN, NEB., Nov. 23, 1883.

KIRK & FENDER, Minneapolis:

The Morgan Scourer is doing first-class work for us.

Respectfully,

KENDALL & SMITH.

HILLLSDALE, MICH., Dec. 21, 1883.

MESSRS. KIRK & FENDER, Minneapolis,

Gentlemen:—Answering your inquiry as to how I like the Peerless Dust Catcher, purchased from you last summer, will say they are working well and are satisfactory.

You are at liberty to use my name in recommending the machines strong. Yours truly,

F. W. STOCK.

OFFICE COLUMBIA MILLS,
MINNEAPOLIS, MINN., Nov. 27, 1883.

MESSRS. KIRK & FENDER, Minneapolis,

Gentlemen:—In August last we took one of your Morgan Scourers, No. 5 on trial, displacing with it a Smutter of a well-known western manufacturer's make. So well pleased were we with it, that after a few days' running we got another Morgan and removed two more Smutters (same make as former one thrown out.) *Two Morgans* are now doing the work of *the three* Smutters (only a good deal better work) and we are more than suited with the change. They remove the beard more effectually than any machines we have ever seen. And a very perceptible improvement in the color of our flour is directly traceable to the work of the Morgan.

Yours truly,

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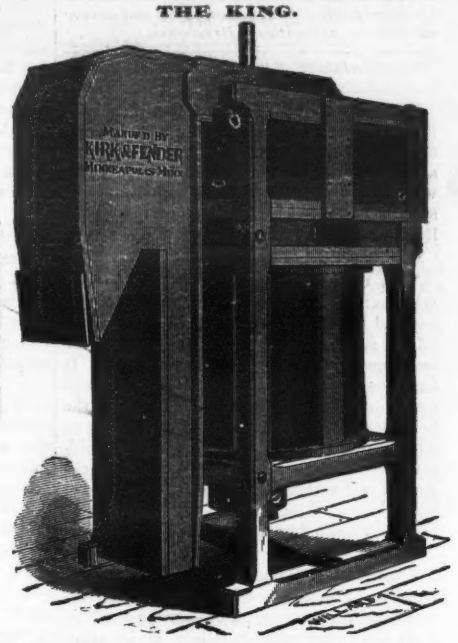

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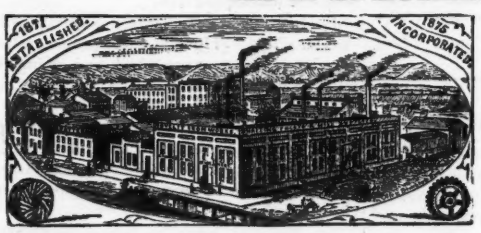

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Agents for all kinds of Mill Machinery and Supplies.

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Convex Turbine Water Wheel

We guarantee our wheel to give satisfaction in every instance, when properly set, and stand in readiness if so desired, to test it with any other wheel; such test to be a laboring one, and the mill proprietors to have whole control of it, and of course to purchase the winning wheel. Write us for information and catalogue.

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SIDLE FLETCHER HOLMES CO.

Manufacturers of

The Best Grades of Roller Granulated Flour

From Selected Minnesota and Dakota Hard Wheat.

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NORTHWESTERN MILLER

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At 228 Washington Ave. South, MINNEAPOLIS.
W. C. EDGAR, - - Business Manager.

$2.00 per year in U. S. and Canadas, postage paid
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Agent for the Southwest, E. E. Carreras, 119 Locust St., St. Louis, Mo.

Agent for Great Britain, Flugel & Co., 26 and 28 Mark Lane, London, who will receive all subscriptions to the Northwestern Miller and communications for publication in its columns.

MINNEAPOLIS, FRIDAY, DEC. 28, 1883.

THE NORTHWESTERN MILLER has been considered by its friends rather a good looking and well printed paper, but we shall make an attempt to improve it with the next issue, which will be set throughout with new type, and show other marks of an attempt to improve its general appearance and readability.

* * *

THE extra holiday issue of the NORTHWESTERN MILLER, published on Christmas day and by this time doubtless in the hands of all our subscribers, is, so far as we know, the handsomest milling publication yet issued. It has numerous defects, and some of them quite noticeable ones, we must admit, but when the limited time given us by our advertisers in which to get out the various forms is considered, we think that we have done very well. At any rate we are free to confess that we have learned some things which will enable us to produce a much finer holiday number next year.

* * *

THE question is one of those from the discussion of which there can be little benefit derived, but for the purpose of showing our New York contemporary the fallacy of its arguments in favor of establishing a large milling colony in New York, we take them up *seriatim*. It says:

> It is an altogether mistaken notion that manufacturing of any kind must necessarily be carried on "at or very close to" the place where the raw material is produced, to be profitable.

This is not true, as has been plainly demonstrated at St. Louis, Minneapolis, Milwaukee, etc. By-the-way, what is the condition of cotton manufacture in New England since the erection of great cotton factories throughout the south? We quote again:

> Wheat is sent in vast quantities to England from California, 15,000 miles distant, to be manufactured into flour, as it also is from Australia, Chili and the far distant interior of British India.

Exactly so: How many mills are there on the Pacific coast, in Australia, Chili, and the far distant interior of British India, and why are new modern style mills of great capacity constantly going up in California, Oregon, and Australia? The day is not far distant when flour will take the place of wheat in the exports of the Pacific coast and Australia. Perhaps our contemporary can tell what the difference in price between English and American made flour from the same grades of wheat is, and why there is a difference. Here are two other alleged arguments:

> Europe does not raise one pound of cotton, and yet the United States exported last fiscal year the value of over $247,000,000 in raw cotton and only $13,000,000 in cotton manufactures, while of the latter the value of the imports was nearly $3,000,000. Large quantities of hides and rags are shipped from California to the Eastern States via Cape Horn, and returned overland by rail in the shape of boots and shoes and paper.

There are not enough mills and factories in this country to handle its cotton crop. The imports are unimportant. There are no nickels and dimes in circulation in California. The one-cent garbage heap workers of the Eastern states have not invaded the Golden state, hence rags have to be shipped away to be worked up. As for hides, their export will end when tanneries are erected on the coast. New York or other Eastern millers cannot get as good winter or spring wheat, year in and year out, as St. Louis or Minneapolis millers use. The same grade of wheat of either variety will not, as a rule, make as good flour at London, Buffalo or New York, as at or near the place of its production. Millers remote from the grain fields can only approximate the excellence of the flour made by the best western millers, and even under brands that are imitations of western, they do not get as good figures for it. We maintain that New York is not a favorable location for a milling colony, and that the results of years of experience justify the conclusion.

* * *

THE general outlook for the milling industry during 1884 cannot be said to be gloomy. It is not to be expected that any radical change in processes will come to create a furore among millers. Milling has not attained perfection, but we can hardly anticipate an innovation in the near future that will surpass or eclipse the roller system. There is reason to believe that during 1884 marked changes in present modes will occur and that superior flour will be the result, but this will not be due to changes in machinery so much as in more gradual reduction, with a greater number of purifications. In adopting this practically new feature, some will succeed, but many will fail, for conditions are so different in the various sections of our country that mills will not work out alike everywhere.

* * *

IN "Facts about Scotch Fife," printed elsewhere, our readers who are interested in that most valuable variety of milling wheat will find a useful collection of facts and figures regarding it. They may be regarded as correct and our agricultural exchanges copying the article will benefit their constituencies.

* * *

OUR valued Milwaukee correspondent presented in the Holiday number, issued this week, the annual balance sheet of the mills of that city, or rather that part of it which shows the production of flour for 1883. There is also given a statement of changes and improvements in the mills, and a list of head operatives. The report shows that the mills have done a light year's work, a fact due to the heavy over production and consequent depression in the flour trade. It is safe to say, however, that had all the mills of the country held the reins as closely on production as did the millers of Milwaukee, flour would to-day command better prices. The statement shows a total production of 815,000 barrels of flour, being 531,509 barrels less than were turned out last year. The milling capacity has been increased and various extensive improvements and additions made to machinery, so that there is every promise that during the coming year the mills of the Cream City will add greatly to their already high and rapidly growing reputation for manufacturing good flour.

* * *

IT GOES without saying that "there is no friendship in trade," hence those who count on any consideration for America when the wheats of the world come into competition on an equal footing as regards cleanliness, etc., will reckon without their host. Thus far in the race for supremacy, America has outstripped Russia by sending cleaner grain, and generally very uniform in quality, to European markets, admitting, for the sake of argument, that in certain parts of Russia wheat is equal in all respects to the hard grades of Minnesota and Dakota, and that the average crop of other portions of the great empire equals that of this country, outside of the hard wheat sections. The Russians, however, are noted for slovenly farming and that country has nothing which in any way resembles our magnificent elevator system. In fact there is no country in the world which equals us in caring for its grain after it has ripened. Even in England, superiority over American methods ceases when the grain is ready for the sickle, though possibly the warehouses of Great Britain are superior to ours in some respects. Within five years, however, Russian competition will become stronger, for the reason that the American elevator system is to be introduced there, under government auspices, but it will take more than five years to effect a radical change in Russian farming methods. As for Indian wheat, almost if not quite a quarter of a century must elapse before that great region can be transformed into anything like a model farming country. So long as present methods are pursued in the growing and marketing of wheat, the American farmer will hold his present supremacy. There is nothing in the situation, however, to justify relaxation of efforts at improvement in yield as well as quality of our wheat crop. America must farm more systematically, must fertilize more, and rest her broad acres by rotation of crops, if she would continue to raise wheat with profit and hold her customers.

* * *

THE *Northwestern Lumberman* has the following notice of one of our recently added departments:

> THE NORTHWESTERN MILLER, of Minneapolis, Minn., a trade journal of such high merit that it always affords us pleasure to mention it, pays a great deal of attention to cooperage. It is a little singular that some of the other flour milling papers ignore this branch of their business to such an extent that no man who reads them would even suspect that flour is ever packed in a barrel. This is considered proper from the standpoint of the publishers of these journals, of course, but a wide-awake miller would take an opposite view of it. The question of cooperage is of much importance to millers generally, and most of them certainly ought to be as well posted on it as they are on the price and supply of wheat.

* * *

THE situation in the grain markets is a most puzzling one. The tendency of the past few years has been to make Chicago the central figure in the world's grain trade, hence we have seen that market regulate the prices for the globe during the last three months, although the fluctuations there have not greatly affected foreign marts. So far as prices are concerned, we find that during fifteen years past they have, at this time, been mainly higher. The figures show that in but one year, 1875, were they on an equality at Chicago with those of Saturday last. In 1882, 1880, 1878, 1874, and 1869 they were lower, in 1869 being 20 cents lower than on Saturday. In 1881, 1879, 1877, 1876, 1873, 1872, 1871, 1870 and 1868 they ranged from 10 to 33 cents higher, respectively, the highest price at Christmas being $1.32⅞ per bus., in 1879. The visible supply of wheat at that time was larger than for the eleven years between 1872 and 1883. Four causes contributed to the great fluctuations noted—insects, drouths, light crops and speculation. With the wonderful growth in wheat production, speculation has taken the place of other causes for fluctuation, and henceforth there can be no such wide variations as in the period under notice, save when a great speculative scheme is inaugurated. The cornering process is not likely to come into vogue very soon, since the results of the last two or three great corners so disgusted the engineers thereof. There is then in prospect nothing looking to great changes in the condition of the grain markets for another month, beyond the small "milking" operations which have occurred so frequently during the last quarter of the year, except it be in corn, the future course of which is uncertain. Possibly it has reached its highest point, but we should not be surprised to see it touch 75 cents. The only influence to hold corn steady is the great size and fine quality of the oat crop, but this may not prove strong enough.

LOCAL & PERSONAL.

With the dullness characteristic of the holiday season, added to insufficient water power, the platform does not present a very animated appearance at the present time. The water remains quite low, and the most of those mills endeavoring to run can only do so irregularly, it being quite difficult to make an even flour. The power averaged poorly throughout last week, and the output of flour was the lightest of any week since early in September, being only 9,450 barrels per day. It looks as though the production would be fully as low this week. There are six mills shut down entirely, while the others are unable to do much more than half their usual amount of work. There is a stronger undertone to the flour market than has been felt for some time, and slightly better prices are being obtained for the higher grades.

Our receipts and shipments were as follows for the week ending Dec. 25:

	Received.	Shipped.
Wheat, bus.	204,500	65,500
Flour, bbls.	3,650	46,174
Millstuff, tons	180	1,336
LAST WEEK.		
Flour, bbls.	4,750	90,583
Wheat, bus.	391,500	113,590
Millstuff, tons	84	2,659

The stock of wheat in store in the elevators (including the transfer) and mills of the city on Tuesday, was about 3,225,000 bus. At St. Paul there were 1,200,000 bus., against 1,100,000 last week, and at Duluth 2,348,000 bus., against 2,140,900 bus. the previous week.

* * *

About half of the mills ran on Christmas day.

The Galaxy mill has been shut down to lower its intake pipe.

The Anchor mill, which had been shut down about ten days, resumed operations Monday.

R. E. Kidder, formerly in the Washburn C mill, is keeping books for the Crosby mill at Topeka, Kas.

Ernest Savory, representing Richard Doggett, the most extensive dealer in millstuff in the London market, is in the city.

J. M. Case, president of the Case Mfg. Co., Columbus, O., has been in the city several days. It is his first visit to the metropolis.

Each employe of C. A. Pillsbury & Co. in both the Pillsbury A and Anchor mills, received a turkey from the firm on Christmas.

John Brewis, draughtsman for the North Star Iron Works, left the first of the week to spend the holidays at Milwaukee and Chicago.

Geo. Gildersleeve, formerly of Sioux Falls, Dak., is now at Dell Rapids, Dak., helping change the Van Epps mill over to the roller system.

L. H. Lisk has returned from St. Olaf, Dak., where he has been spending the past month, helping to get the new Pettigrew mill under way.

Willford & Northway have received orders from W. W. Cargill & Bro., Hokah, Minn., and Cargill & Fall, Houston, Minn., for two centrifugal reels each.

The mills shut down at present are the Palisade, Excelsior, Standard, Galaxy, Humboldt, and Washburn C. Their total capacity is about 6,500 bbls. per day.

H. M. Goodhue, representing the Knickerbocker Co., Jackson, Mich., is in the city. He is putting one of the Morse elevator bolts into the Crown Roller mill.

The Lincoln mill, at Anoka, owned by the Washburn Mill Co., made a splendid run last week, averaging its full capacity, 800 bbls. each day, or 4,800 bbls. for the week.

Mrs. Giles, wife of Henry Giles, of the Washburn C mill, fell down stairs at her home on the 13th inst., and, although no bones were broken, received quite painful injuries.

The Queen Bee mill at Sioux Falls, Dak., has been shut down for the winter, and nearly all the employes have been laid off. E. J. Elliott, formerly of Milwaukee, is the head miller.

A. L. Miner and O. P. Briggs, of the Pray Mfg. Co., have been seriously ill, the former for three weeks and the latter two weeks. Mr. Briggs is able to be around again, but Mr. Miner remains quite sick.

J. D. Edge was in the city Monday from Osceola, Wis. He says that the new mill of Lovejoy & Sutton, upon which he is doing the millwright work, will be in readiness for starting up in about a week.

While Head Miller Walsh will continue to direct affairs at the Cataract mill after he takes possession of the office of county treasurer, John Davin, second miller, will be in charge of the mill under him.

Jas. Pye is at home to remain until after New Year's. He has done good work for his firm, the Pray Mfg. Co., the past season, being kept almost constantly on "the go" for some time, taking contracts and starting mills.

The warehouse built by the Milwaukee railroad next to elevator B was near enough to being completed to commence receiving wheat last Saturday, and it now contains about 80,000 bus. It has been christened the "D."

Head Miller Menor, of Mazeppa, spent Monday and Tuesday in the city. His company's mill is running right along. It uses steam and water combined as a power, but the water is low and steam has to be largely depended on.

Fred George, of the Zenith mill, had his coat-tail taken off slick and clean last Saturday, by getting it caught in the gears of a roller mill. The coat, luckily, was old and rotten, and Fred was none the worse off for the episode.

The Union mill is to have its present water wheel, which is disabled, supplanted by a new 48 inch American wheel, by which it is calculated that the power of the mill will be

very much improved. The new wheel may be put in the present week.

Head Miller McDaniels of the Washburn A, returned Sunday from his trip to Kansas and St. Louis. He says the Crosby mill at Topeka is a nice one, and that it has been started up in a most favorable manner. Ira Howe is the head miller.

Samuel Morse, of the grain commission firm of Morse & Sammis, this city, was married at Chicago, Dec. 18, to Miss Mary E. Donlin. The couple went east on a bridal tour and will be here next week to receive congratulations and settle down.

The calendar season is wide open. The only milling firm we have heard from as yet in this line is A. C. Loring & Co. Their calendar shows the effect of Al. Loring's frequent and extended visits to the Art Loan rooms. The Rock Island, Omaha, and Milwaukee lines have issued beautiful souvenirs.

Richard Hutchins, an oiler of the Pillsbury A mill, fell seven feet from a staging into one of the water wheel cisterns Wednesday night, and, while probably not sustaining any very serious injury, received a bad shock by striking the back of his head on some obstruction in the descent.

The Excelsior mill yet remains idle, pending some improvements to its water power. A new water wheel has been ordered, and the intake pipe in front is being lowered about four feet. A new water wheel arrived a week or ten days ago, but the express company's employes broke it in unloading it.

Railroad officials say that the amount of flour being shipped at the present time by country millers is not over one-third what it was before the present cold weather came on. The supposition is that the cold has interfered with country water mills, curtailing their production even to a greater extent proportionately than with the mills in Minneapolis.

John Brown, of Ireland, who was employed in the Standard mill for a time, thence proceeding to London, Eng., to represent a machinery firm, has recently taken charge of a 500 barrel mill near Dublin, Ireland. The mill is partly on the roller process, being in process of a gradual change to that system, and Mr. Brown is reported to be handling it in a very satisfactory manner.

Last Christmas the employes of the Pettit mill made a handsome present to Head Miller Stephens, and this year he comes back at them. Monday afternoon a case of the best oysters was received at the Pettit, the gift of Mr. Stephens, and as each employe departed for home, he received a can. Later—The boys of the Pettit cornered Mr. Stephens on Christmas day, and presented him with a hair seal overcoat.

E. T. Abbott & Co., civil engineers of this city, have just completed a very elaborate and extensive map or ground plan, of the west side water power and its ramifications. It shows the exact location and size of every foot of land in the milling district, and the improvements thereon, including all the tunnels and race ways. It was got up for the Minneapolis Mill Co., to whom it will be invaluable, and we are indebted to Agent de la Barre for a glance over it.

There are said to be quite a large number of millwrights in this city out of employment, the case of the Washburn C mill being cited as an instance in proof of this. Millwrights were advertised for in the want columns of a daily paper in its Sunday issue, and the next day about two hundred men made application for work. But millwrights are getting more this winter than last, wages ranging at from $2.50 to $3 per day, while last year they were $2.25 to $2.75.

Willford & Northway have the contract for making improvements on the mill of W. W. Cargill & Bro., at Whalan, Minn., increasing its capacity 175 barrels. The new machinery to be added includes five Smith purifiers, three Minneapolis centrifugal reels and one aspirator. Work on the changes was commenced Wednesday, A. R. Hodgman being the millwright in charge. John Nicolin, Jr., took this job for his firm, as well as orders for four centrifugals in the same week.

The city council has made an appropriation for the equipment of the milling district with fire apparatus, and by the close of January a move will probably have been made to organize a fire company among the mill employes to operate it. A. M. Bailey, of the Washburn mills, is rather looked upon as the proper person to inaugurate the organization of a millers' fire company, but, although willing to undertake it, he will not have the time to do so before late in January. The apparatus provided for consists of 500 feet of 2½ inch hose with carriage, and 50 feet of 3½ inch hose with 4 way Siamese and 2 inch nozzle.

Head Miller Dodge, of the Washburn C mill, about three weeks ago fell from a staging in the mill, and struck upon a rusty spike protruding from a timber. It entered his thigh to the depth of over an inch, but Mr. Dodge, not minding it much, continued at his duties as usual. Last week the wound commenced to trouble him, and on Thursday he had to go home and remain. While the injury is not of a serious character, it requires attention, and will probably keep Mr. Dodge at home a couple of weeks or more.

W. J. Baird, a pioneer settler of Hennepin county, and part owner of the Richfield, Minn., mill, dropped dead on the 18th inst., while on the streets in that place. Mr. Baird was one of the oldest settlers of Hennepin county, and was widely known, especially among the earlier residents of Minneapolis and the county. The Richfield mill, with which his name has been identified for many years, was one of the first erected in the county, and has an interesting history. It was erected in 1854 by Philander Prescott, Judge Moffatt and Eli Pettijohn, but Mr. Prescott soon became the sole owner, and retained possession until 1862, when he was murdered by the Sioux Indians, being one of the first victims of the great massacre of that year at the lower Sioux agency. Mr. Baird's evidence was one of the principal proofs against the murderers who were hung at Fort Snelling, and known as Medicine Bottle and Little Six, the latter being a participant in the butchery of no less than eighteen men, women and children. Mr. Baird was highly esteemed by the entire community.

Speaking of the iron manufactures of Minneapolis, which are mainly of milling machinery, the *Pioneer Press*, in its annual review, says: "Twenty-one firms or companies are engaged in the working of this metal, and five foundries are in constant operation. Including the product of the railroad machine shops, it is the third industry in point of value in the city, giving employment to 2,132 men and turning out a product valued at $6,545,000, or including the agricultural implement works, of over $8,000,000—over one-third of the value of the whole miscellaneous manufactures The growth of this industry has been at a uniform rate, but rather confined to the old firms than augmented by new ones of great size. The intimate connection of this industry with milling insures the permanence of its present prosperity, and guarantees to the city a constant influx of skilled laborers and their families—the best class of population a city can have, and one eagerly to be sought after and fostered. The range of the iron manufacture is very extensive, covering all forms of milling machinery, both for home consumption and for shipment abroad, where it is in increasing demand; stoves, railroad supplies of all kinds, fences and similar work, boilers and saws. The articles are uniformly of a high grade, and establish a reputation at once wherever they are introduced."

Always Handsome, Now Doubly So.

Pioneer Press, Dec. 27: "The holiday number of the NORTHWESTERN MILLER, issued yesterday, is a magazine of seventy-five large pages, beautifully printed and elaborately illustrated. The MILLER is always a handsome periodical, and doubly so on this occasion. The attractive features do not end with the typography, but include literary contributions by Robt. J. Burdette, Gus. Thomas, Stanley Huntley, Bill Nye and others. A double page view of St. Anthony falls in 1859 is especially interesting, the illustration showing the Cataract house, the City mill, W. E. Forest's livery stable, H. E. Butler's shop, the old government mill, erected in 1821, W. D. Washburn's law office, the lumbermens' boarding house, the Cataract mill and the pail factory, as almost the only buildings at the falls on the west side."

MILLING NEWS.

It is believed by some that an attempt is being made to boom rye in Chicago for February and May.

The Millers' Insurance Co. had $10,000 insurance on the Lafayette mill, burned at Chippewa Falls, Wis.

The large mill of Geo. C. Thiedens at Cape Girardeau, Mo., was recently burned. Loss, $60,000; insurance, $50,000.

The Porter elevator at Clarinda, Ia., owned by John Linderholm, burned on the afternoon of Dec. 20. Loss, $7,000: insured for $5,000.

John S. Maxwell, the miller of Millersburg, O., indicted in New York for making copies of United States notes, has given bail to appear for trial.

The mill of Hon. A. P. Goddard, at Freeport, Ill., was destroyed by fire early on the morning of Dec. 22. Loss, $9,000; insurance on building and machinery, $6,000.

It is estimated that the shipments of wheat from along the line of the Moorhead Northern railroad during the present season will be 600,000 bus. About 100,000 bushels have already been received at Halstad.

The stock of breadstuff in Great Britain is said to be equal to 4,000,000 bushels greater than ever before known, and 9,000,000 bushels larger than at this period last year. The stock in the United States at the last computation was the largest ever held at any one time.

The Farmers' Elevator Co., of Glyndon, Minn., have organized to build a 40,000 bus. elevator to cost $6,500. Thirty-four shares at $100 each were subscribed at the first meeting. The number of shares owned by each member is limited to four. There will be a separate bin for every four shares issued, to be at the disposal of the holder.

The exports of wheat and flour during the periods designated were as follows:

	Wheat bus.	Flour bbls.
Nov. 1883	6,764,837	919,487
Nov. 1882	8,825,845	862,831
Jan. 1 to Nov. 30, 1883	64,234,526	34,892,469
Jan. 1 to Nov. 30, 1882	100,345,387	67,481,659
Total value, Nov. 1883	$5,149,745	$7,295,100
" " " 1882	5,115,936	9,334,753
" " Jan. to Nov.'83	71,729,472	46,577,188
" " " " 1882	114,441,885	38,945,738

The firm of H. S. Gilbert & Co., grain dealers of Ottawa, Utica, Wedran, Grand Ridge and other points in La Salle county, Ill., have dissolved under the pressure of a $47,000 judgment. Their liabilities are unknown, but are placed at $300,000. The farmers are rushing in to see about the money owed them. The members of the firm declare that their affairs will be adjusted in a few days, and all liabilities met.

At about midnight on the 24th inst., the Newton mill, at Chippewa Falls, Wis., took fire, and with a warehouse adjoining, was destroyed. Loss $28,000; insurance $22,000. The mill was owned by Geo. N. Ayers, of Rutland, Vt. The dam across the river, the property of the Chippewa Lumber & Boom Co., also caught fire, and was damaged $6,000, and would have been destroyed except for the efforts of the fire department.

The mill of Dunwoody & Corson, at New Richland, Minn., rated at 200 bbls. per day, has been running steadily and turning out 1,200 bbls. per week for some time. Head Miller Newell is constantly improving the grades and so popular is the mill that the farmers within a radius of forty miles are steady patrons, the country trade being very heavy and growing rapidly. Dunwoody & Corson have a large stock farm and are rapidly improving the grades of stock throughout Waseca county.

Geo. W. Spotts, formerly a grain dealer of Indianapolis, Ind., who married a daughter of Adam Scott, a wealthy citizen of that place, has swindled the latter out of $55,000, which he lost in the bucket shop business. He went to Chicago last September, and has been frequenting negro gambling dens. He was arrested, recently, for conspiracy with a negro to rob the office of the Republican Mill Co., in which his brother, O. W. Spotts, is a partner. The case was dismissed and Spotts was fined $100 for vagrancy, and given twenty-four hours to leave town. Spotts' young wife has been working in a restaurant.

A correspondent at Crete, Neb., writes: "The Crete City roller mill has in a measure changed hands. John C. Tidball, president of the First National bank of Crete, together with D. E. Thompson, of the B. & M., have purchased a half interest, Mr. Seely retaining the other half. D. J. Jones has been engaged as book-keeper and assistant manager. The mill is furnished with the latest improved machinery, and under the new ownership will do a large and successful business. Crete is destined to become the Minneapolis of Nebraska. The large mill of Bridges & White is running night and day to its fullest capacity. The City mill is also run night and day, and both together ship an immense amount of flour.

Milling in Great Britain.

Mr. H. Kains-Jackson, the eminent authority on grain statistics, estimates the consumption of flour in the United Kingdom for the present cereal year, which commenced on the 1st September, as 36,000,000 sacks. Taking the average price per sack at 33s., this gives a total value of £59,400,000. Out of the above quantity of flour, not less than 5,000,000 or more than 6,000,000 sacks will be imported in the manufactured form. Though this shows that the greater proportion of flour is still manufactured there, he states that great and rapid inroads are being made by foreigners, e. g., in 1870–71 the flour imports were 1,921,564 sacks—in 1881–82, 5,600,000 sacks. This rise in the decade is much larger, *pro rata*, than in wheat; the proportions, put roughly, being flour 250 per cent increase, wheat 75 per cent increase. This is a strong argument for the more general use of better machinery in England. It is well known and acknowledged that until comparatively recent years, French millers were far in advance of those of England and those of other countries, and that therefore when they in turn were superseded by the Hungarians and Americans, they not being so far behind as the British, suffered less. Mr. Jackson illustrates this very clearly. He says: "The United Kingdom imports about 15,000,000 qrs. of wheat. France imports 5,000,000, therefore France should also import one-third as much flour as the United Kingdom, but she does not, *taking less than one-tenth.*" Mr. J. H. Chatterton, secretary of the National Association of British and Irish Millers, who is entrusted by millers in all parts of the Kingdom with the insurance of their mills, and who, therefore, has special means of arriving at the cost of the machinery at present in use, estimates it as $37,000,000, there being, he says, 10,000 mills in the United Kingdom.

The Situation in Missouri.

A shipper located at Fayette, Mo., who holds 35,000 bushels wheat in store, says he has constant inquiries from millers located in Moberly, Hannibal and other towns of Missouri, who wish to purchase supplies from him. He believes that the reserves in the state have run down very low, and what is left in the country will be consumed by the mills located at points commanding the sections where any of this wheat is left. Country roads have been in good condition and farmers have marketed nearly all of their surplus. As to the present condition of the winter wheat now in the ground, in his section, he did not speak very enthusiastically. Reliable farmers, he said, say the wheat is there, but it has not grown nor spread as it should have done for this time of the year. It is not near as forward as the 1881 crop, and he thought not even as far advanced as last year's crop. The wheat was planted late, and it has been a dry fall and winter, all of which has retarded the growth of the plant.

The Indiana bureau of statistics, from reports which have been compiled, gives the following summary of the corn yields in the state for 1883: Wheat, 31,405,573 bushels; corn, 89,699,237; oats, 19,567,789; barley, 399,183; rye, 358,513; buckwheat, 39,459; flax, 156,181; timothy hay, 1,831,137 tons; clover hay, 1,620,519; Irish potatoes, 8,353,412 bushels; sweet potatoes, 168,876; tobacco, 7,706,110 pounds. The yield of wheat in 1882 was 46,928,643 bushels, and of corn 115,699,797; oats, 19,615,516; barley, 1,138,717; rye, 548,405; potatoes, 7,264,830.

White Bread and Brown.

One of the most curious circumstances connected with the diffusion of scientific knowledge is the readiness with which, every once in a while, an out-and-out error is accepted by the great public. Says Prof. F. H. Storer in the *Rural New Yorker*: "Once grasped, the delusion is held with a tenacity which is not easily overcome by anything that can be said or written in the way of precept or discourse. Nothing can well be more absurd, for example, than the current notion that a fish diet is especially adapted for feeding the brain 'because' (as the story goes) fish are particularly rich in phosphorus, and 'because' large quantities of phosphorus are needed to nourish the brain; for the whole statement, both as to its premises and its conclusion, is simply groundless and untrue. To persons who like this kind of food, fish does, of course, 'yield light and salutary meals,' as the cat said of the canary bird; but this fact turns on the lack of 'heaviness' of the fish, and upon its easy digestibility; and, in so far as any man now knows, not at all upon 'phosphorus,' or any other occult property or component. As a matter of fact, fish is not specially rich in phosphorus, and there is no evidence whatever and no shadow of probability, that either phosphorus or fish 'goes to the head' in the sense of this idle fable.

"Another error, equally unfounded with the foregoing, though perhaps even more general- and firmly believed, is the odd fancy that white bread is less nutritious than brown bread. To any one who believes in the progress of ideas it is not a little disheartening to witness the persistence with which this crude notion is clung to in spite of the very wide and very general experience of mankind to the contrary, and in spite of the fact that the doctrine was explicitly disproved, years ago, by careful scientific experiments. It is true enough that there is one good reason why it is well for some persons, possibly for many persons, to eat brown bread occasionally, for the bran contained in such bread is laxative. In the same sense that 'bran mashes' are given to horses to keep their bowels open, so bran bread made from unbolted flour is in many cases an excellent article of diet, well fitted to cure or prevent the occurrence of what may fairly enough be called a diseased state of the system. The importance of bran in this regard has been illustrated from time immemorial by the oatmeal of the Scotch; as well as by the comparatively recent use of the 'dyspepsia bread' of Graham, and the 'cracked wheat' of the late Dr. Warren, of Boston. But all this is a matter quite distinct from the simple question of nutrition, that is to say as it relates to laboring men, and to healthy people generally. There are, for that matter, many other ways of meeting the pathologic difficulty just now alluded to besides the use of preparations of 'whole meal.' Indeed, when taken as a medicament, bran bread needs to be used with caution. It must always be borne in mind that it is the very fact of its difficult digestibility that makes bran useful for those persons, in tolerable health, to whom experience has justified its use.

"It commonly happens that some of the constituents of the slowly digesting bran take on an acid fermentation which tends to make the mass of partially digested food pass more rapidly through the intestines than would otherwise be the case, and it is probable also that the mere mechanical action of the coarse, undigested particles of bran may incite the bowels to action by gently irritating their lining membrane. But, on the other hand, it is manifest that, because of its indigestibility, bran bread must be inappropriate food for many delicate persons. There are doubtless abundant instances where a diet of white bread with the addition of stewed prunes, for example, or tamarinds, would be in all respects more wholesome, healthful and nutritious than either oat meal, cracked wheat or Graham bread. It is probably true, indeed, that the chief reason why the generality of mankind prefer white bread as a standard food is its comparative lightness and easy digestibility. Most people are less liable to be distressed or made uncomfortable by white bread than by brown, and they esteem it accordingly. It has often been urged as a merit of the black bread of Europe, and of the rye bread also of our New England ancestors, that, besides being cheaper than white bread it 'stands by' a laborer longer; in other words, that the feeling of hunger does not so soon recur to him after eating brown bread as after eating white bread. But this peculiarity also of the brown bread manifestly depends upon its indigestibility. Since it can leave the stomach but slowly, this organ does not soon become empty, and the sensation of hunger, which is a result of the stomach's being empty, is not felt. But this again is a point quite distinct from nutrition, and it is notorious that the peasants who use black bread are compelled to eat enormous quantities of it, besides milk and other additions, in order to be adequately nourished. To persons habituated to the use of such coarse bread, great distention of the stomach becomes a second nature, and they are, naturally enough, apt to complain that white bread does not satisfy them.

"The idea is occasionally thrown out that it is more 'natural' to eat the whole grain than the sifted flour; but if there were any truth in this notion a similar method of reasoning would compel us to show cause why we are not equally in duty bound to eat the outer coverings of potatoes, peaches and apples, to say nothing of the shells of hickory nuts. There is one case, indeed, where a somewhat analogous argument leads to an extremely dangerous popular practice, viz: the swallowing of the stones of cherries, together with the fruit; but, as every physician knows, the introduction of these wholly indigestible bullets into the stomach not infrequently occasions very grave, or even fatal, disorders; particularly in cases where the person happens to be 'out of sorts' at the time when the stones were eaten. With the progress of physiological knowledge the propriety of excluding all these indigestible matters (bran, as well as the rest) from human food becomes more and more manifest. Such refuse matters may be excellent for feeding animals, and it becomes us to use them to the best possible advantage—as is in fact already done in many places. It might, indeed, be argued fairly enough, in so far as relates to the question of nutrition, that the oil-cake now used for feeding animals might more properly than bran be employed as human food, for the experiments of the German chemists have shown that of the two substances bran ir rather less easily digested by cattle than oil-cake. It has been shown, withal, long ago, that, because of its indigestibility, bran cannot be so well utilized by hogs as by neat cattle with their more powerful apparatus fos reducing refractory foods.

"All this is matter of common sense and common observation. It is known, furthermore, that in proportion as the nations become more and more civilized so much the more general does the use of white bread become among them, while the use of brown bread tends continually to be more and more restricted. It is much with nations as with individual families—in proportion as they grow easier as to their circumstances so do they instinctively turn to white bread as the normal food in place of the cheaper substitutes to the use of which they were formerly compelled by their poverty. The justice of this popular verdict in favor of white bread has been most fully vindicated by numerous scientific experiments. It has been shown, for example, that while the dung of dogs fed upon black bread, rich in bran, may amount to as much as 75 per cent of the weight of the bread eaten, it does not amount to more than 12 or 15 per cent when the animals are fed upon white bread. So, too, with men; when fed upon white bread, five-and-a-half per cent of the bread passed off undigested, against 10 per cent in the case of bread made from sifted rye flour, and 19 per cent in the case of bread made from unbolted rye meal. As the result of recent German experiments upon men, it is admitted that while four or five per cent of the dry substance of white bread passes off unused, 15 per cent of the dry substance of black bread goes to waste. Even upon a flesh diet, it has been shown that the amount of excrement is increased if bran is mixed with the flesh. From all of which it is plain that any gain, real or supposed, of nutritive matters which might be got by leaving bran in bread is more than counter-balanced by the tendency of the bran to pass rapidly through the intestines, and to carry other nutritive matters with it. It may justly be said of bran—and of the breads and other preparations of which bran forms a part—that, after they have once passed out of the stomach, they hasten the digestive movement and so quicken the passage of food through the intestines that a considerably larger proportion of it escapes assimilation and goes to waste than is the case when white bread is eaten. As was said before, this result is just what the physician desires when he recommends that brown bread should be eaten by some kinds of dyspeptic patients; but it is absurd to say, on this account, that the brown bread is especially nutritious.

"So, too, in respect to the saline matters in bran. The most prominent among these constituents are the phosphates of potash and of magnesia; but even the whitest flour contains a considerable amount of these things, to say nothing of the fact that they are abundant in many other kinds of food which are habitually eaten. Few people who are well enough off to use white bread, and who are accustomed to the generous diet which its use implies, are ever likely to run much risk of suffering from a lack of the ash-ingredients which are prominent in bran. Besides all this, it is notorious that these constituents are so impacted and concealed in the woody fiber of the bran that, practically, only a comparatively small proportion of them is digested and absorbed. It is not, however, by any means the saline matters found in bran that are most liable to be absent from human food; and even if we did stand in special need of these things, it would be an easy matter to supply them as such, as has in fact always been done in the analogous case of common salt—a substance which is needed by the animal economy, and which is inadequately supplied to it by most foods."

The Corn Situation.

A late exhaustive review of the crop situation by a Chicago firm reports that Illinois has considerable soft and immature corn in the northern portion, much of which will never be dry enough for cribbing. Yield is larger than last year. In central and southern counties the yield is above an average and the condition generally good. Missouri's acreage and yield is larger, the estimate yield exceeding 40 bus. to the acre. Crops make the best showing in the southwest, but good curing weather will put the entire crop of the state into right shape. Estimate yield of Kansas at 200,000,000 bus. Except in a half dozen northeastern counties, where a very small portion is soft, the yield of the state exceeds the most sanguine expectations. Some soft corn in central Nebraska, but the general condition of the crop is fairly satisfactory. Estimate yield 40 to 45 bus. Iowa has a poor crop; the worst of three years past, 12 to 15 per cent being practically worthless, answering very poorly for feeding. Winter wheat in Illinois, Missouri and Kansas shows an increased acreage of fully 10 per cent, mainly in Kansas. Plant well forward and healthy everywhere. Kansas has fully one-fourth of last year's crop on hand; reserves of Missouri and Illinois practically exhausted. Spring wheat—more than 25 per cent in Nebraska still in farmers' and dealers' hands over and above seed requirements. Large reserves of oats in all the states held by farmers and dealers, but owing to relative low price, as compared with corn, oats are now being generally fed to stock in preference to shipping.

Secretary Seamans on a New Tack.

S. H. Seamans, secretary of the National Millers' Association, has just concluded an extended investigation into the validity of the patents on what are known as wagon or scale dumps, appliances used generally by warehousemen, and occasionally by millers, in the corn growing sections of the country for the purpose of facilitating the unloading of ear corn from farmers' wagons. A large number of patents have been issued on devices employed for this purpose, the earliest antedating 1854, and being now invalid by reason of expiration. Representatives of the owners of some of the later patents, however, are scouring the country with the object of endeavoring to collect royalty on infringements. Mr. Seamans says that many of the claims upon which royalties are sought to be collected are questionable, to say the least, and suggests that persons called upon to pay a royalty for the use of corn dump devices will do well to correspond with him before disbursing money for that purpose.

The farm of T. L. Morton, Livingston, Man., this year showed the following results per acre: Scotch fife wheat, 45 bus.; White Russian, 35; oats, 55; barley, 50; a part of the fife field lodged and consequently did not ripen, this, of course, lowering the yield. Mr. Morton has proven himself a good farmer. He does not farm very extensively, but what he does, he does well.

BUSINESS NOTICES.

The St. Louis Roller Repair Co.

OFFICERS.

WM. T. PORTER, Pres., Wilmington, Del.
J. MORTON POOLE, Jr., Vice-Pres., Wilmington, Del.
TOM MILLER, Jr., Sec. and Treas., St. Louis, Mo.

DIRECTORS.

WM. T. PORTER. | R. L. DOWNTON.
J. MORTON POOLE, Jr. | TOM MILLER, Jr.

OFFICE: No. 503 Chamber of Commerce.
WORKS: S. E. Corner Walnut and 21st Streets.

TO MILLERS.

We would respectfully inform millers and all others using chilled iron rolls, that we have lately erected and fitted up at Walnut and 21st Street, St. Louis, Mo., extensive works, with the celebrated J. Morton Poole Co.'s grinding and corrugating machinery, and have a full force of skilled workmen from their shops, at Wilmington, Del., and are now prepared to re-grind and re-corrugate chilled iron rolls of all makes and descriptions, with any form or number of corrugations desired. Parties sending rolls to be re-ground or re-cut, will oblige us by marking each box, who the rollsare from, and give us plainest possible directions what they wish done to their rolls. State size of rolls. what corrugations they now have and what it is desired to have them re-cut. Our extensive plant of machinery enables us to give prompt dispatch to all work in the line entrusted to us. We are also prepared to re-grind rolls made of porcelain, steel, or any other materials. Orders will be filled in turn. Address THE ST. LOUIS ROLLER REPAIR CO., St. Louis, Mo.

A LONG FELT WANT SUPPLIED.

The La Crosse Smooth Chilled Iron Roller Mill—price $125.00. These mills will crush tailings or size middlings for a 100 barrel mill. For particulars apply to JOHN JAMES & CO., La Crosse, Wis.

BOLTING CLOTH.

Don't order your cloth until you have conferred with us. It will pay you both in point of quality and price. We are prepared with specia facilities for this work. Write us before you order. Address

CASE MFG. CO., Columbus, Ohio.

Office and factory 5th St., North of Naughten.

CLUB LIST.

NORTHWESTERN MILLER with

American Miller	1 year	$2.50
London Miller	"	3.00
Scientific American	"	4.50
American Agriculturist	"	3.00
Harper's Magazine	"	5.00
Century (Scribner's) Magazine	"	5.30
Boston Journal of Commerce	"	4.25
Abernathy's Hints on Millbuilding	"	4.00
Emerson's Book	"	2.50
American Machinist	"	4.20

STEVENS ROLLS RE-CORRUGATED.

Millers in the west and northwest, who may have Stevens rolls that require re-dressing or re-corrugating, can have such work promptly and expeditiously performed by MR. ROBT. JAMISON, NEENAH, WIS., to whom we have furnished an outfit of specially constructed machinery for this purpose.

THE JNO. T. NOYE MFG. CO.,
BUFFALO, N. Y.

TO IOWA MILLERS.

The annual meeting of the Iowa Millers' Association will be held in the court house in Des Moines, Jan. 16, 1884, at 11 o'clock A. M., with headquarters at the above house. The officers have endeavored to present a programme this year that will be interesting and beneficial. A general attendence is desired.

J. J. SNOUFFER, Pres.
J. S. LORD, Sec'y.

ST. LOUIS SIFTINGS.

[SPECIAL CORRESPONDENCE.]

The past week opened up well and very encouragingly, and a feeling of relief was evinced by our millers and flour dealers. But this was only of very short duration, the markets returning to the dull and low ruts of a week ago. Monday's spurt was attributed to the high wheat market, the steady advance of which spurred buyers on, and heavy sales resulted. Although the flour market ruled dull and inactive, holders continue firm in their views, and a little advance on fancy and extra fancy is noted. The Eastern and export demand has shown life again, and several large orders were placed during the week. Receipts of flour have been lighter, but shipments show a good increase. Sales averaged about 5,000 barrels per day. The cold weather of the past few days has caused the ice to run very heavily in the river, and the insurance companies have placed an embargo on river shipments. Hence, all shipments by that route have ceased. The railroads, however, have been equal to the emergency, affording ample facilities for all needs. Our mills show a decrease in flour production, the Kehlor and St. George mills dropping out, and the Victoria slowing down to half time. The cold snap brought into use the heaters which the mild weather had made to seem more ornamental than useful. In several cases where the mills were running extra strong, the speed was slowed down a trifle to avoid breakages. With the exception of changes noted, our output continues steady, as follows:

Planet	D. L. Wing Milling Co.	1,800
Anchor	Anchor Milling Co.	1,000
Plant	Geo. P. Plant Milling Co.	1,000
Victoria	Victoria Mill Co.	400
*Empire	Empire Milling Co.	
Park	Jno. W. Kauffman	800
President	" " "	850
Eagle Steam	E. O. Stanard & Co.	1,000
Alton City	" " "	650
Jefferson	Sessinghaus Bros.	500
*Franklin	Geo. P. Plant Milling Co.	
Saxony	E. W. Leonhardt & Co.	600
Laclede	Kehlor Bros.	600
*Kehlor	D. M. Kehlor Milling Co.	
Crown Roller	Crown Milling Co.	700
Camp Spring	Camp Spring Milling Co.	800
*St. George	Henry Kalbfleisch & Co.	
Merrimac	H. B. Eggers & Co.	400
Hezel	Hezel Milling Co.	400
City Mills	Atlantic Milling Co.	200
Atlantic	" " "	800
*Phœnix	" " "	
*United States	E. Goddard & Son.	
*Cherry Street	F. L. Johnston & Co.	
Lallement	Lallement Milling Co.	125

Total daily output	12,625
Output last week	14,925

*Shut down.

In the wheat market, No. 2 red opened up higher all around, and gained considerable strength right along, until about the middle of the week, when it began easing off and closes to-day 1 cent higher than last Saturday. The movement has been fair, and mostly for consumption. Eastern shipments have dragged and been dull, offerings the latter part of the week being generally undesirable; hence not sought after by millers. Receipts continue small, averaging only about 35,000 bushels daily. Shipments have also been light, yet show a little increase. Values closed to-day at $1.03½ for No. 2 red, and 94½c. for No. 3 red. Millstuffs met a fair eastern and southern demand up to Wednesday. Bran flagged in movement, and dropped in price on account of the cessation of river traffic. The general market is easier, with prices quoted as follows: Sacked bran, f. o. b., 64@65c; sacked middlings, 95c. f. o. b.

***

The D. M. Kehlor mill shut down Monday.

The stock of wheat in store here is 1,878,820 bus.

Harry Richardson returned Monday from a short trip to Washington, Mo.

C. M. Gilbert, of the Richmond Mfg. Co., returned from Lockport on Friday.

Joseph P. Campbell, an enterprising miller from Rolla, Mo., visited this city on Thursday.

R. James Abernathey arrived here Saturday, and met with an ovation from his many friends.

Harry Maurice, late with the Union steam mill, is now a member of the D. M. Kehlor mill staff.

Two Case automatic feeders, and a Fir centrifugal reel have been lately placed in the Eagle mill.

C. E. Ennis, representing the Case Mfg Co. in the west, spent the early part of the week in this city.

The Downton Mfg Co. have placed one of their New Idea roller mills, with scalper, in the Laclede mill.

Wm. Hawks, representing E. O. Stanard & Co. in the east, is here on a visit, spending the holidays with his family.

Clifford F. Hall, publisher of the *Modern Miller*, visited this city Thursday, and regaled our office with his angelic smiles.

James McDaniels, head miller of the Washburn A mill, at Minneapolis, arrived in this city on Thursday, on his way home from Topeka, Kas. Mr. McDaniels spent a day visiting points of interest in this city, also taking a run to Litchfield, and left for Minneapolis Saturday morning.

A horrible accident occurred at the Laclede mill on the 19th inst., resulting in the instant death of John Busche, a German, aged 42, employed in the capacity of a sweeper. No one was present at the time with Busche when the accident happened, and no one can tell, therefore, exactly how it occurred. At the coroner's inquest, Thomas Toole, an employe of the mill, testified that he was working on the fourth floor when he heard a groaning on the floor below. Quickly descending he found Busche behind the hopper, caught in the gearing. He at once rang the bell to stop the machinery, and going down stairs met W. H. Tipton, the head miller, on the second floor. Mr. Tipton then rang the bell and the machinery was stopped. Ascending to the third floor they found Busche caught in the gears of a bolting chest, with his left arm completely wound around the shaft as though it was a piece of cloth, and his body badly torn by the cog wheel. He was at once released, but died in a very few moments, without having spoken a word. Mr. Tipton testified that the machinery was as well protected as is usual in mills, and he could not understand how the accident could have happened, as Busche had worked there for nearly nine months and understood perfectly well the danger of going too close to the gearing when in motion.

CARRERAS.

St. Louis, Dec. 24.

TRADE TALK

This column is open to all regular subscribers to the Northwestern Miller, and all questions will be answered by competent practical millers at the publisher's expense. Unless signed by the editor, all matter published is given as the expression of individual opinion, for which the Northwestern Miller assumes no responsibility. Subscribers asking questions or criticising matter appearing here or elsewhere in the Northwestern Miller, may use initials or such signatures as they may select, but every letter must be accompanied by the full name of the writer, as only bona fide communications will be printed. The fullest criticism of anything and everything appearing in the paper, in this department or elsewhere, is invited.

Geo. D. Thomas, Bozeman, M. T.: "I write to inquire something in regard to laws by which trade marks or brands for flour are protected against infringement. If my recollection serves me right, it seems that in cases brought by owners of trade marks, in the United States courts, that said courts refused or rather decided that they had no authority to enjoin infringers—but that in states or territories where there were laws governing trade marks, that the courts of said states or territories could protect the owners of trade marks within jurisdiction. Can you give me any information in regard to it? If so please give through your journal."

***

Emil Munch, Afton, Minn. "I am surprised that when your millers complain so much of low water, that none of them will come out here, where within a few miles of the great milling centre, they might have an excellent water power, made by springs and affected neither by ice or drought and where the same steady head can be maintained, to an inch, all the year around, and capable of turning out 150 bbls. per day. Situated in a splendid wheat district and near the railroad station of the Milwaukee R. R., I have here a good mill of 3 runs of stone, etc., and a very good location for exchange, but of course cannot compete against the first class gradual reduction mills of the milling centres around, and having no means for further improvement, would be glad to associate myself with some good man with means enough to complete the mill and use the good chance.

***

"Lac Qui Parle," Minn. "In answer to W. H., Austin, Minn., as far as my experience goes, Sea Island and blue stem are about alike, midway in texture between Prussian fife and Scotch fife. Yes, I think it makes as white, but not as strong flour as Scotch fife wheat. I would like to ask a question. Why does flour from sprouted wheat make runny, or sticky bread? That is, does the germ affect the whole berry, and to what extent?"

***

Daniel Doncaster, Pauxsutawney, Pa.: "Enclosed you will find $2 for subscription one year. I have been very busy away from home, building new mills and remodeling mills the past year, and have neglected sending until now. I am well pleased with your paper, but being absent from home I miss quite a number of them. I intend going out of the business of millwrighting this coming year. My reasons for going out are that it requires me to be absent from home all the time, and besides that, the large mill furnishing companies are about running us local millwrights out of the business. They come around and make false statements to the effect that local millwrights do not understand the business, and that they can do a better and cheaper job by furnishing a mill complete and sending their own mechanics to put in the works. Now any sensible man certainly knows that if the local millwright understands his business, he can make a cheaper job and as complete as any mill furnishing company. I have been engaged in milling and millwrighting the past forty years. The last twenty years I have devoted all my time to millwrighting, and in all the history of my millwrighting jobs, I have never made a mistake nor a failure. All are complete successes, and I challenge any man to refer to a case. Let the mill furnishing companies come forward and point out a case of failure. The past year I have built one old process mill with three runs of stones for H. I. Eckenrode, Carrolltown, Cambria county, Pa., and remodeled one for Horace Patchin, four run mill to new process, Burnsides, Clearfield county, Pa. Also repaired sawmills. Next summer my heavy work will be in building saw mills in Clearfield county."

***

Geo. Davis, Ottawa, Minn.: "I obtained from T. J. Sloan, of Red Wood Falls, this state, 150 pounds of so-called Rice wheat, from which I made 115 pounds of flour. I send you sample, enough to bake a batch of bread, from which I desire you would bake or get some good baker to bake, and report. I also send sample of middlings and bran. I steamed the wheat, running it into a barrel, and covered it up with a blanket for sixteen hours. I then emptied it out on the floor and cooled it off. I milled it one week thereafter. My wife made a batch of bread from it, using hop yeast and mixing a few potatoes, as she generally does when making bread, and the result was just as nice bread as could be desired. The result to me was astonishing, for after sweating, I cut into several kernels with my knife. It looked decidedly yellow, and no sign of anything like flour. In grinding, I could not discover but what it ground just about the same as any hard wheat in good condition; rather more middlings, if anything. It seemed to bolt more freely. If Rice wheat, not an extra quality, will make such flour with a No. 8 cloth bolt, what would be the result with modern roller milling? Wheat that has been condemned, and will not be taken in the market only as rejected, no matter how much it weighs! If I am informed correctly, Rice wheat will grow in some localities, yielding an astonishingly large amount, with clean, white, perfect straw, very stout, not liable to fall down, and a very certain crop. If so, and as good flour can be made from it, as sample would indicate, is it not the wheat to raise in such localities? The improvement in the quality of the flour of this Rice wheat, corresponds with all of my experiments with other wheats. I am satisfied that a great deal of wheat can be improved by my process, especially in the fore part of the season."

The sample has not yet been baked, but it has been doughed up and shows remarkably well for stone made flour. When first wet up it is strong and takes considerable water. It loses its strength to some extent later in the process, but is, on the whole, much better flour than any one who has examined it supposed could be made from Rice wheat. This may be owing to Mr. Davis' sweating or curing process, or it may not. We are unable to speak understandingly as to this, never having seen it in operation. It seems to be well worth investigation, however.

MIDDLINGS.

"A baptism in hades' depth
As hot as boiling tar
Awaits the man who quits a room
And leaves the door ajar.
And he who softly shuts the door
Shall dwell among the blest,
Where the wicked cease from troubling
And the weary are at rest."

*

What business man makes the most money when he has no work to do? The insurance adjuster.

*

"Mamma," said little Dot, at the breakfast table, "Mamma, put some more perfumery on my potato."

"What do you mean, my child?" asked mamma, "We don't put perfumery on potatoes. What *do* you want?"

"You know what I want," said Dot, pointing to the pepper bottle in the caster, "Put some more of that perfumery powder on my potato."

*

The hardest old toper in a certain western city is a plumber whose name is Drinkwater.

*

A prominent grain commission man told me the other day that he had the papers to show the following transaction:

"I bought of Mr. ——— in the chamber of commerce, at the opening of the session, 5,000 bus. of wheat by sample at 95 cents. I sent a clerk down to the freight yard, got another sample from the same car, and before the session closed I sold that same lot of wheat back to the man I bought it of at an even dollar a bushel. He didn't discover how he had euchered himself until we closed up the trade, when he happened to notice that the car numbers in each transaction were identical."

*

The same party told me about a deal made some years ago, in which a certain miller was badly salted by an error of judgment. It seems that a grain dealer whom I will call Jones, having ten cars of very poor wheat on his hands, visited every mill in Milwaukee, with one exception, and the highest offer he could get for the stuff was 70 cents. Night was near as he walked up to the office of the last mill—one, by the way, which had never patronized him. With his hand on the latch he hesitated and gloomily pondered o'er the query, "to enter, or not to enter." At last he walked in and two minutes later he was rushing to his office to close a sale of the lot at 95 cents. Before he supped the trade was concluded and he slept well that night. That miller has never dealt with him since.

*

This conundrum is referred to the nearest police court: "If it costs $12.85 to strike a reporter and $7.85 to kick an insurance agent's shins, what would the fine be for throwing a book agent out of a fourth-story window?"

He was Mistaken.

A farmer approached a grain buyer at Manitou, Manitoba, recently, with a load of wheat. The buyer opened a bag and examined the cereal critically.

"Your wheat's been damaged by frost," said the buyer.

"Shouldn't wonder if it had," replied the farmer. "Blame it any way. I never took so much pains with anything as I did with that wheat. I papered my granary, sided it, shingled it, lined it—did everything but put a stove in it—and hanged if it don't seem as if it was bound to freeze. Why, old man, that wheat was harvested last year when there was no frost, and if it hadn't been for freezing in the granary, I guess it would have been all right."

The buyer retired behind a pile of lumber and kicked himself.

COOPERS' CHIPS.

J. J. Campbell is a manufacturer of cooper stock at Chesaning, Mich.

M. Taaffe, book-keeper for the Standard shops, has returned to Chicago.

The Phœnix shops are not working quite full time, being slightly stinted.

The Phœnix Bbl. Co. have enlarged their office, and fitted it up in nice shape.

The Dowd shops are working about twenty coopers, but are not running full time.

Chas. Merrifield, operating a stave mill at South Hope, Me., has been burned out.

A cooper factory and saw mill is being put up at Ashland City, Tenn., by Henry Fuller.

There were 66 cars of barrel stock reported received in this city last week, and 4 cars shipped out.

J. & J. Heverling, dealers in staves, etc., at St. Louis, Mo., have given a chattel mortgage for $1,200.

There were about fifty men at work in the Standard shops, Saturday, and about all of them had joined the union.

The cooper business at Milwaukee, Wis., is reported dull. Prices paid for making flour barrels are 11½ and 13 cents.

F. M. Brown, Jr., of F. M. Brown & Co., stave manufacturers at Northport, Wis., was in the city the first of the week.

The product of the Minneapolis cooper shops for the past year is estimated at $1,345,562, the hands employed being about 800.

Our St. Louis correspondent says: "Benj. F. Horn, proprietor of our largest cooper shops, returned on Friday from a trip east."

Barrels in this city are quotable at: Ten-hoop single-stave, 44 and 45 cents; twelve-hoop or double-stave, 47 cents; half barrels, 38 cents.

The stave mill of S. Boyce, at Fremont, O., was destroyed by fire on the morning of Dec. 20. Loss, $20,000; insurance, $11,000.

Owing to the flour mills not running over half capacity, our cooper shops are working quite light; and this state of things is liable to continue for some time.

The most of our shops report numerous offerings by hoop and pole men, but that stave dealers anxious to make sales at current prices are few in number.

F. W. Gebhardt, of Black River Falls, Wis., writes us that only tight work is done in that place now. The burning of the flour mill last year did away with flour barrel work.

Just previous to the last strike, half barrels were being sold by most shops in the city at 36 cents, but under the conditions of the agreement entered into, the price is fixed at 38 cents.

A. J. Palmes, president of the Northwestern Bbl. Co., spent several days in Wisconsin last week on business for his shops. In his absence, Treasurer Towles has charge of the shops.

Eight or ten coopers who went from here to Sioux Falls, Dak., have returned, low water, so they say, having forced the Queen Bee mill to shut down for the winter. Prices paid at the Falls were 17½ cents for hand-made barrels.

The only important change we have to note in the local cooper stock market is a drop in poles of $1, quotations now ranging from $11 to $13. First class grades of flour barrel staves remain firm, with a tendency to higher prices. A fair amount of snow in the woods is reported, and should it stay and afford good hauling conditions for six weeks or two months, it will undoubtedly have some effect on the market, probably tempering the advance which has been pretty generally anticipated. Quotations are made at 17¾ to 19½c per set for good to No. 1 stock, while inferior grades may be had at lower figures. Heading per set is worth 4¾ to 5 cents, and shaved hoops are quoted at $8 per thousand.

Some of the shops of the city report some remonstrance among the millers to the advance in prices of barrels, but the coopers, both bosses and journeymen, present a pretty solid front, and are likely to maintain the new scale of prices. The coopers claim to have been losing money for some time, and believe that they have the right to exercise their prerogative in the matter, the same as the miller does in advancing the price of flour when wheat costs him so much that he is left no margin. So well are the journeymen organized that they have been able to keep the Bumb shops without a crew of over three or four men, and the proprietor was reported on Thursday to have weakened considerably, with a prospect of his early becoming willing to sign the agreement between the bosses.

The flour barrel shop at St. Paul is operated by J. W. Kline, formerly of Minneapolis, and Cirkel & Son, the stock firm at Seymour, Wis., Mr. Kline being the manager. This shop is located at the corner of Washington and Eagle streets, and employs between sixteen and eighteen men, among the number being T. Devore, A. F. Shenk, A. Newburg, Oliver Hoffman, G. R. Hoffman, Wm. Vilas, Jacob Carver, Henry Miller, Wm. Obes, Geo. Morgan, —— Button, and Chas. Drake. The firm furnish the Capital mill with barrels, receiving 45 cents, and pay their men 16½ cents for making. An effort has been made by the firm to obtain 47 cents of the millers for barrels, but they were not successful. Syme & De Mott, of Minneapolis, at one time had an interest in this shop, but sold out to Cirkel & Son.

The patent barrel which we recently stated had been gotten up by the Hennepin Bbl. Co., is not a double stave barrel, but a barrel with covered joints. It is the invention of C. B. Washburn, one of the members of the company. One-half inch staves are used, and out of the inside, covering the joints, grooves about one inch wide, and one-quarter of an inch thick, are cut, and into these grooves are inserted strips of wood, making a dovetail. It has not yet been practicable to determine the exact cost of the barrel over the ordinary single-stave, if any, but the inventor is sanguine that it will not be much. It requires a thicker stave (one-half inch) and the best class of stock; but these points aside, it makes a barrel which cannot leak through the stave joints, and one probably as good as the double-stave barrel. Experiments are being made with the barrel, and should they be deemed sufficiently satisfactory, special machinery will be got up to cut the staves. The inventor has applied for a patent on his barrel.

Thos. L. Lee, of Paducah, Ky., is the inventor of a barrel former and a ventilated barrel, having received patents on the same last week. The claims on the former are: 1. In a barrel machine, a base piece and two ends having a hole in each, and a shaft fitting said holes, in combination with two flanged discs of less diameter than the interior of the barrel to be made, and equal in thickness to the height of the barrel chine plus the flange on each, having each a hole in its center, fitting said shaft. 2. In a barrel machine, a base piece and two ends having a hole in each, a shaft fitting said holes, having a shoulder midway, and means for preventing the heads moving outward, in combination with a wedge having a central groove, said wedge being equal in length to the interior of the barrel. 3. In a barrel machine, a base piece, two end pieces attached thereto, having each a hole in it, and means for holding therein the parts of a barrel, in combination with two detents fixed in a plane with the axis of a barrel, and upon the inner face of each end piece.

"A number of steamboat men," says the New Orleans *Times-Democrat*, "are complaining of the quality of the barrels in which sugar and rice are shipped from this city. Sugar planters have marketed in barrels instead of hogsheads, and a majority of the crop this year will be so shipped. So far, good. The change is a blessing to the steamboats. Hogsheads were very inconvenient and troublesome to handle, particularly during low water, when the banks were high and muddy; and barrels are much better if they are sound and good. It is here that the complaint comes in. There has been an unusually large number of very inferior and rotten barrels used this year, that break of themselves and cause loss to the carrier. The steamers declare that their losses in consequence of this breakage have been so much larger lately than usual that they will have to take some action in the matter if shippers continue to use these inferior articles. We have been shown a sample stave of one which fell to pieces on the trip up to St. Louis; and we do not wonder at the complaint. This barrel was made nominally of white oak, but the material was either drift wood caught in the river, or it had been submitted to some process which rendered it rotten and worthless. It could easily be picked to pieces, and at the very lightest usage must have crumbled away into nothing. It is but justice to our own coopers to state that this barrel was an imported one, coming from the west."

The circulars sent last week by the boss coopers of the city to our millers, notifying them of the advance in prices of barrels, read as follows: "The prices of flour barrels which have been current in this market for the past two months not being sufficient to cover the cost of manufacture, we have found it necessary to make an advance in prices, the same to take effect Monday morning, December 24, 1883. This advance is only sufficient to allow a small margin above actual cost, which at present is as follows:

	Cents.
Oak stock (average)	13½
Heading	5
Hoops	6
Delivery (average)	1
Labor	16½
Shop expenses (average)	2
Total cost	44

The cost of a ten-hoop mixed barrel is about one cent less, and a twelve-hoop single and patent double stave, two cents more than these figures. The prices of barrels hereafter and until further notice will be as follows:

			Cents.
Ten hoop, mixed,	single	staves	44
" " oak	"	"	45
Twelve "	"	"	47
Patent	double	"	47

This circular was signed by nine of the leading shops in the city, including every cooperative company. Bumb's shops were the only ones of any importance not included, and on Thursday it was reported that the proprietor of these had promised to sign the agreement with the other shops.

The Chicago cooperage market is reviewed as follows by the *Northwestern Lumberman* under date of Dec. 20: "This market this week has ruled steady, with a good demand for all lard tierces sent in, but dull for barrels, both for city or country make. The reason for this can be found in the fact that the hogs now arriving are more suitable for sides and lard than for mess pork. The stock of staves and heading has been increased by constant arrivals until now the supply is rather in excess of the demand, though, as yet, with no appreciable decline in price. The slack demand for barrels has rendered pork staves nearly unsalable, which condition continues until the packers call for a greater proportion of barrels. Fresh arrivals of green hoops have met with a ready sale, but old and dry cannot be sold so readily, as the expense and time required to soak them into condition for use is not sufficiently compensated for by any reduction in price which manufacturers are willing to accept. Nothing new can be said about the trade in flour barrels in this city. The extreme dullness is causing a good many manufacturers to talk about going out of the business, and relief may come in that way. Oak flour barrel stock has been thought to have better prices ahead of it, as with an open winter the output at the mills would be very materially reduced, but with the advent of snow, and the very flattering prospect of an ordinarily severe winter, such arguments lose their force." Quotations:

TIGHT BARREL STOCK.

Tierce staves, s'd and l'd	24.00@27.00	Tierce, square heading	30.00@35.00
Pork staves, s'd and l'd	19.00@21.00	Pork, square heading	20.00@24.00
Tierce staves, bucked	23.00@26.00	Tierce, circled heading, per set	16½@17½¢
and listed	28.00@32.00		
Pork staves, bucked and listed	19.00@23.00	Pork, circled heading, per set	13½@14½¢

HOOPS.

Hickory tierce, per M	13.00@15.00	Oak pork per M	9.00@10.00
Oak	11.00@13.00	Slack tierce	8.00@ 9.00
Hickory, pork	9.50@10.50	Pork box straps	12.00@16.00

COOPERS' FLAG.

N. Y. state, per ton	50.00@70.00	Common Illinois	25.00@40.00
Ohio	40.00@50.00		

FLOUR BARREL STOCK.

Oak flour st'vs	6.00@ 7.00	Basswood hd'g per set	4@ 5¢
Elm	5.00@ 5.50		
Elm, 30-inch	5.75@ 6.50	Oak	4½@ 5¢
Oak and elm, No. 2	3.00@ 4.00	Oak and Elm No. 2	2½@ 4¢

HOOPS.

Hickory flour hoops, per M	6.00@ 7.50	Flat ash, 6½ ft. per M	4.50@ 5.50
Flat ash, 5½ ft. per M	3.50@ 4.50	Coiled elm, 6½ ft. per M	5.50@ 8.00

HEAD LININGS.

50-inch, per M	1.00@ 2.00	12-inch, per M	40@ 75

The Future of Wheat Marts.

The *Railroad Gazette* calls attention to the fact that for the four years past the fall receipts of grain at northwestern points have shown a great gain over receipts at eastern seaboard points, when, formerly the opposite condition was the fact. The excess of northwestern over Atlantic receipts, for four years past, is exhibited as follows: 1880, 5,138,555 bushels; 1881, 16,552,157; 1882, 16,556,834; 1883, 50,167,800. The *Gazette* comments thus:

"The difference this year is so great as to call for remark and speculation as to what has become of the grain. An unusual accumulation in western elevators accounts for a comparatively small part of it; the remainder seems to have been absorbed by the country between the west and the seaboard; but why it should have taken so much more than usual is not apparent.

'It is likely that western millers have taken a large amount of wheat in anticipation of an advance in prices, as there was a well known shortage in the crop this year,' says the *Northwestern Lumberman*. The milling industry of the northwest has become an enormous factor in the absorption of grain. But this would only, partially account for the disappearance of a portion of the grain of all sorts received at northwestern points. The failure of the corn crop to mature, as was expected, has made a call for home consumption that has probably absorbed a large amount of corn and oats. Advices from Iowa and portions of Illinois and Wisconsin, go to show that those producing states will be large consumers of the coarse grains this year. The same will doubtless be true of Michigan, Indiana and Ohio. But over and above all contingent causes for the unusual absorption of the grain product of the northwest is the great cause—the growth of population in this section of the country. It is hard for the commercial and transportation interests of the east to believe that the center of things in this country is moving westward, but they will, before ten years have passed, be so forcibly impressed with the fact that they will know it is a verity. Time will come when the movement of grain from Chicago to the seaboard will be insignificant compared to the movement from the fields to northwestern centres. When Chicago, St. Louis, St. Paul and Minneapolis, Milwaukee, Indianapolis, Detroit, Cleveland, Cincinnati, Louisville, Memphis, Kansas City, Omaha, and many other large and thriving cities, have doubled and tripled their populations, while mixed husbandry has prevented an increase to any considerable extent in the grain crops, the eastern seaboard will receive a much smaller proportion of northwestern food products than now. The wheat of Dakota and Manitoba will be wanted for consumption in the great cities of the Mississippi valley, that will become teeming centres of manufacture and trade, overshadowing anything now known at the east."

Artistically A Decided Success.

Minnesota *Tribune*, Dec. 27: "The Christmas number of the NORTHWESTERN MILLER contains a large amount of information of value to millers, and is made a family number of, as well, by choice selections in prose and poetry. Artistically it is a decided success. The lithographic illustration of the Minneapolis milling district in 1859 is worth more than the price of the number. The district at the time contained two flour mills, besides the old government mill—the city mill, on the west bank of the river, below the falls, and the Cataract mill, upon Hennepin island. The only other prominent buildings in this section at that date were the Cataract house, now the Sixth Avenue house; the pail factory on Hennepin island, just below the Cataract mill, and W. D. Washburn's law office, prominent from its location rather than its size."

The employes of E. P. Allis & Co., Milwaukee, on Christmas presented to Joseph Harrison, foreman of the foundry, an elegant gold watch, appropriately engraved.

The Red Lake Milling & Lumber Co., of Red Lake Falls, Dak., suffered a washout recently, $500 damage being done. It has since been repaired, however.

The NORTH STAR CENTRIFUGAL

A PERFECT SUCCESS BOLTING MACHINE

HENRY SECK Patentee.

THIS MACHINE IS NO EXPERIMENT!

But is in every way

The Best and Most Complete Centrifugal

IN THE MARKET, AND GIVES EXCELLENT SATISFACTION WHEREVER IT IS IN USE.

The following firms are a few of those using this machine:

WASHBURN A AND C MILLS; WASHBURN, CROSBY & CO.; J. A. CHRISTIAN & CO.;
SIDLE FLETCHER HOLMES CO.; WASHBURN MILL CO.; PETTIT MILL;
ZENITH MILL; LEONARD DAY & CO.; PALISADE MILL;
CROSBY ROLLER MILL CO., TOPEKA, KAS., ETC., ETC.

BEWARE OF INFRINGEMENTS. *All points fully covered by strong patents in this country and Europe. A cut of the machine and testimonials will appear in next issue.*

For Circulars and Prices, apply to

THE NORTH STAR IRON WORKS CO.,

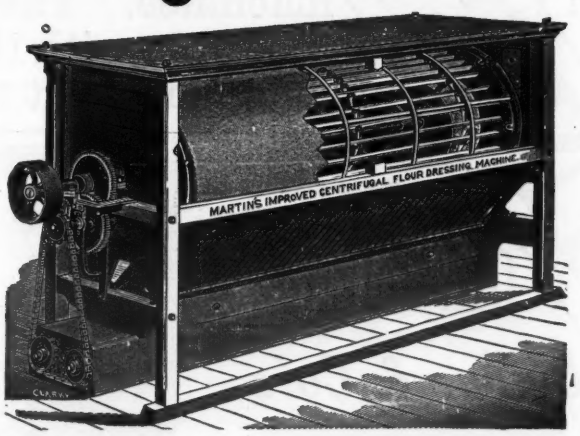
MINNEAPOLIS, - MINNESOTA.

THE MARTIN

Improved Centrifugal Flour Dressing Reel!

OVER **1,000** *IN USE.*

Largest Capacity,
Best Results.



OVER **1,000** *IN USE.*

Lightest Running,
Least Wear of Silk.

THE MARTIN CENTRIFUGAL Has more than FOUR TIMES the capacity of the ordinary reel, and will make clear flour and a clean finish on stock that cannot be treated in the common reel without loss, no matter how much silk it is passed over.

IT IS ESPECIALLY ADAPTED to handling soft, re-ground material, full of light impurities, whether from rolls or stone.

IT IS VASTLY SUPERIOR to the common reel for dusting middlings.

IT IS INDISPENSABLE to a CLOSE FINISH in any system of gradual reduction milling, and will improve the quality of the low grade flour at the same time it makes the offal cleaner.

IT MAKES A CLEAN SEPARATION on caked and flaky meal from smooth rolls, which other style of reel can do.

THEY CAN BE USED TO ADVANTAGE as a complete system of bolting, to the exclusio the ordinary reel.

Our New Double Conveyors, New Cloth Fixing and Stretching Device, New and Improved Manner of Driving,

ARE SPECIAL FEATURES OF THE GREATEST IMPORTANCE.

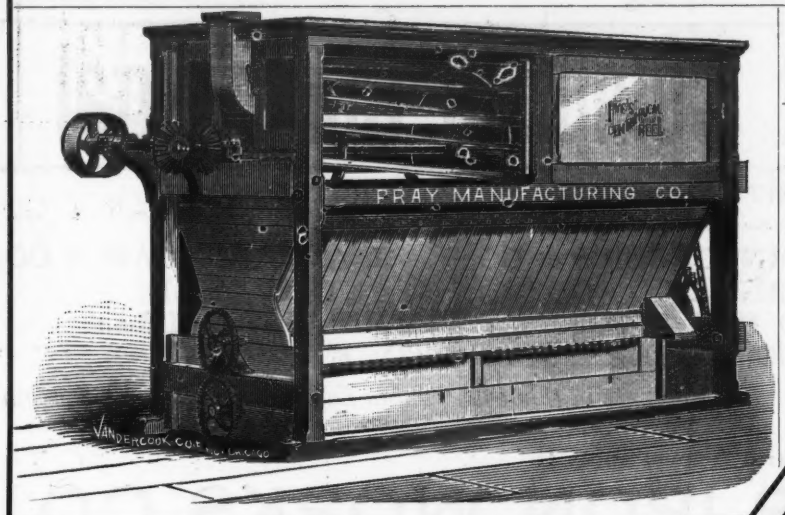
Since commencing the manufacture of these reels we have sold them in large numbers to leading millers in all parts of the country, for work in connection with all kinds of reduction machines and on every class of material, and they are giving unqualified satisfaction. We build them in six sizes, suitable for all classes of mills, and ranging in capacity from **200 to 2,000 pounds.** Write for circulars, etc.

GEO. T. SMITH MIDDLINGS PURIFIER CO., JACKSON, MICH.

PRAY MNFG. CO.

MINNEAPOLIS, MINNESOTA.

PYE'S CENTRIFUGAL REEL.



ALTHOUGH IN THE MARKET BUT A FEW MONTHS, OVER

60

ARE NOW IN USE GIVING ENTIRE SATISFACTION.

MACHINE SHOP AND FOUNDRY

The Points of Superiority

OF THIS REEL OVER ALL OTHERS ARE AS FOLLOWS:

The material is fed through a wire screen to prevent dough-balls, chips, nails, etc., from entering.

Anything lodged in this screen can be removed while the reel is in motion

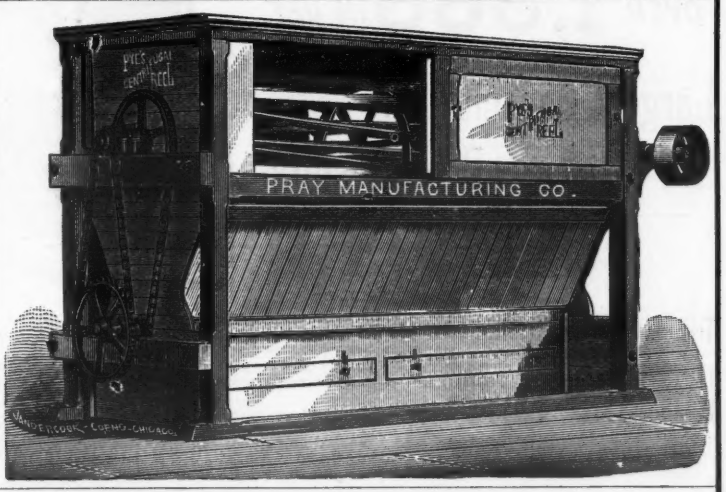
The cut-off slides are so arranged that the miller can cut off every two inches making the entire bottom of the upper conveyor adjustable. It is supplied with two set of beaters. The second set prevent the material from working along in the center of the reel and at the same time keep the reel open They are made to be driven from a shaft either parallel or at right angles to the machine. This enables us to place them where it is impossible to place other machines. They are as well made as is possible with the most skillful workmanship and best material in the market.

THE

Old Reliable

Dufour & Co.'s

Bolting Cloth



Write for Prices and information to

PRAY MFG. CO. MINNEAPOLIS.

MILLING AT MILWAUKEE.

[SPECIAL CORRESPONDENCE.]

The holidays are at hand and business is almost at a stand still. Very few orders are in the market and millers are supplying customers on orders already in. Between Christmas and New Year's several of our mills will shut down to take stock, and make some necessary repairs. Very little business is expected from now on until Jan. 15, when hopes are entertained that a better and steadier trade will exist. A very important obstacle which prevented business of late was the uncalled for advance in east bound freights. Nothing in the trade warranted it, in fact, freights were too high previous to the advance for the light traffic. The only cause for advancing rates must have been through customs of former years, when stocks were low and demand for produce more active. This obstacle is being reduced by the almost general cutting of east bound rates. The tonnage for export is also very light and ocean rates are quoted lower almost every day, which enables the miller to deliver his freight across the water cheaper than previous to the advance in east bound freights. The wheat market the past week has been very dull, with slight fluctuations, but on the whole lower. The probability is that we will see lower prices yet, and wheat under a dollar, on this crop, will not be as good property as it is usually considered.

The following shows the daily production of our several mills for the past week:

Firm.	Mill.	Bbls.
E. Sanderson & Co.	Phœnix	1,000
J. B. A. Kern & Son	Eagle	1,000
L. R. Hurd (Manager)	Daisy	450
F. H. Magdeburg & Co.	Gem	200
Stern & Wohlrab	Jupiter	400
Total daily production		3,050

The demand from our city buyers for flour is limited to actual requirements, and will continue so until the New Year. Patents are nominal at $6.50@7, and bakers', $5@5.50. City mill roller process rye flour, $3.50.

The feed market is firm, and brokers are paying $11.50 for bulk bran and $13 for sacked; $14 for bulk middlings and $15.50 for sacked.

The stock of wheat in store here this date is 2,494,000 bus., as compared with 639,487 bus. for 1882, 908,789 bus. for 1881, and 2,551,782 bus. for 1880 at the same time.

Below find the receipts and shipments of flour and wheat as compared with former periods:

WHEAT—RECEIPTS.	Bus.
For past week	363,210
Corresponding week last year	264,016
Since Jan. 1, 1883	8,689,399
Corresponding time last year	7,457,993
SHIPMENTS.	
For past week	129,200
Corresponding week last year	30,075
Since Jan. 1, 1883	2,831,025
Corresponding time last year	1,771,354
FLOUR—RECEIPTS.	Bbls.
For the past week	69,096
Corresponding week last year	70,147
Since Jan. 1, 1883	3,292,605
Corresponding time last year	3,229,729
SHIPMENTS.	
For the past week	86,822
Corresponding week last year	78,736
Since Jan. 1, 1883	3,910,700
Corresponding time last year	4,120,880

BRIGHTON.

Milwaukee, Dec. 24.

The New Mill at Redfield, Dak.

[SPECIAL CORRESPONDENCE.]

The Redfield flouring mill has been in operation nearly a month now, which has been time enough for it to prove a success in all respects. The residents of the town, and surrounding country are now congratulating themselves on their possession of a mill, as it only takes a short time to convince the farmers in Dakota that selling wheat at sixty-five or seventy cents, and buying flour at the ruling prices, is a losing operation. Last spring they concluded that they wanted a mill badly enough to pay a bonus, and at the same time, John Kutneusky, of Groveland, Ill., determined to seek new fields for the milling business, and removed from that locality. The result was that he reached Redfield at the right time, and after making satisfactory arrangements with the citizens, commenced to build the mill in August. The mill has a capacity of 125 barrels of flour in twenty-four hours, which, although appearing small to eastern millers, seems to be about the right size for this country, as we have five good mills within eighty miles of this point.

The mill building is 36x40 feet, with four stories and basement, and has a brick engine room adjoining, 46x24 feet in size. This contains a forty horse power Buffalo engine, a sixteen feet stteel boiler, and he usual appointments of a first-class engine room. A handsome and substantial brick smoke-stack rising 70 feet in height, is a land mark of which the town is quite proud. Being situated near the Turtle river, the mill has a fine supply of good water for steam purposes. The mill proper was built by contract, by Haggerty, Hunter & Co., of Peoria, Ill., who gave good satisfaction.

The basement, which is of stone, contains the hurst frame for two runs of buhrs, the main and two counter lines of shafting, the elevator boots, and wheat sinks, holding 3,000 bushels of wheat. The first, or ground floor, has four double sets of Allis-Gray roller mills, with 9x14 rolls, one Stevens 9x18 roller mill, one Little Giant break machine, two runs stone, and one Barnard & Leas flour packer. On the second floor is found one bolting chest, containing two sixteen-foot reels, one with two twenty-one foot reels, one eighteen-foot rye bolt, and one corn meal bolt; also two aspirators, working on second and third breaks, and the packer chests. The third floor has one six-reel scalping chest, one twenty-one-foot flour reel, one large size double Smith purifier, one Silver Creek smut machine, and a Barnard & Leas brush machine. On the fourth and last floor are one Barnard & Leas separator, a Silver Creek bran duster, a Minneapolis centrifugal reel, a set of magnets, and the shafting necessary for driving the machinery above the grinding floor, which is driven by an upright shaft from the main line in the basement.

The mill is in charge of B. H. Kutnewsky, son of the proprietor, and he is doing excellent work with the little mill. They are crowded to full capacity with exchange work, and will run steadily night and day after the holidays. The firm already feels the need of more room, if not more capacity, and will erect a 25,000 bushel elevator adjoining the mill, as soon as possible in the spring. The proprietor has been in the milling business for the past eighteen years, and brings his experience to this point, where he will undoubtedly have the success which the country warrants, and which we wish him. OCCASIONAL.

Cincinnati Grains.

[SPECIAL CORRESPONDENCE.]

E. H. Huntington & Co.'s new mill, recently overhauled and changed to the roller system by Stout, Mills & Temple, started up under most favorable auspices last week. We bespeak for the new mill a most successful and remunerative trade.

The Little Daisy mill, as it is fittingly termed, owned and operated by Naglee & Co., continues to run along smoothly, and is turning out the staff of life at a rapid rate under the careful and judicious management of Mr. Bonn.

The ever popular Broadway mill, operated by Roots & Co., continues to run steadily along, turning out about 500 bbls. of flour per day.

The millers here experience some difficulty in procuring good wheat at prices that warrant them in running full time through the holiday season. If it were not for our southern trade, as a prominent miller remarked but yesterday, the mills of the city would not be running half time at present. But here, as elsewhere, millers (especially those of a philosophical turn of mind,) look forward to more favorable markets in the early spring. F.

This is an old story, but as we have never seen it in print, it is given: Several years ago a green Teuton was employed to make soundings on a Mississippi river steamer. He began thus: "Plenty of vater h-e-r-e;" "Not quite so much vater h-e-r-e;" then, as the boat struck into a shallow place, "You better keep away from h-e-r-e." At this moment the steamer ran aground with a jar that sent the amateur mariner headlong into a mud hole twenty feet away. He was equal to the occasion, however, for, as he scrambled out upon dry ground he turned and sang out with an injured air, "Didn't I tole you s-o?"

Those needing cloth can save time and money by ordering of our Northwestern Agents. Write them for samples and prices. Order once and you will order again. Heavy cloths for centrifugals a speciality. Cloths more durable and work more satisfactory than that done by lighter grades of silk. Don't wait for double, extra heavy silk to be manufactured for your centrifugal reels. Order at once of those who have the best and heaviest in double extra up to number fifteen in the country, and were the first to advertise just what is needed for centrifugal reels. ***WE CAN AND WILL PLEASE YOU.*** *No delay in filling orders; full stock on hand. Write or call on*

MAYO & COLLINS,
226 Washington Ave., South,
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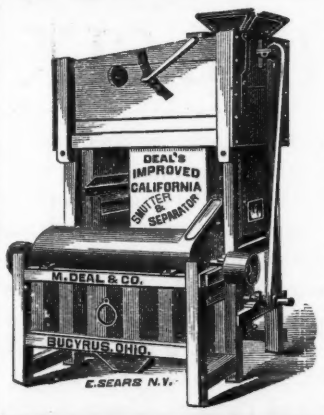
CALIFORNIA!



DEAL'S CALIFORNIA MAGNETIC
BRUSH SMUTTER
AND
Separator Combined.
WARRANTED THE VERY BEST IN AMERICA.

The purchaser being the judge after 60 or 90 days trial. We manufacture a complete line of Grain Cleaning Machinery, and guarantee every machine to give entire satisfaction or no pay. Send for circulars, it will pay you.

M. DEAL & CO.,
Sole Owners and Manufacturers,
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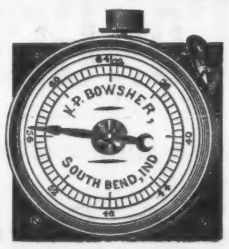
MANUFACTURERS OF
LEATHER BELTING and HOSE
And Manufacturer's Agents for
RUBBER AND COTTON BELTING AND HOSE, LACE LEATHER, ETC. ETC.
A Full Line of the Very Best Elevator Buckets Kept Constantly in Stock.
Sole Manufacturers of the Celebrated NON-POROUS LEATHER BELT.
404 MAIN STREET, ST. LOUIS, MO.



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South Bend, Indiana,
Manufacturer of
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(WITH OR WITHOUT ALARM.)

This Indicator has a well established reputation, and if desired is sent to any responsible party on thirty days' trial.
☞ Always give size and average speed of shaft to which you wish to connect. Address as above, or any leading millfurnisher.

THE BEST ROLL IN THE MARKET!

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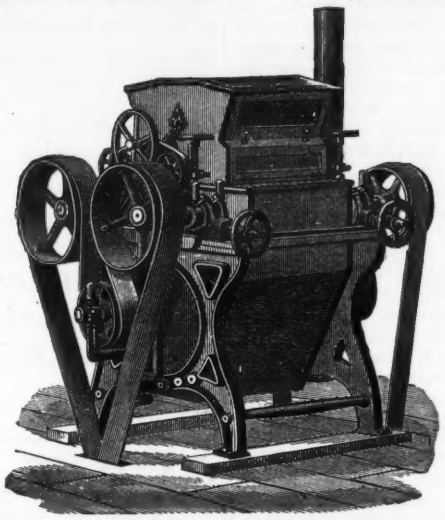
Patent Improved Noiseless

ROLLER MILLS!

IMPROVED

Because it Requires Less Power, has Greater Capacity and Produces Better Results than the Old Style Gradual Reduction.



Requires Less Power

Because There is Less Weight to Drive, and a Greater Leverage Obtained.

THE ORIGINAL SIX-INCH ROLLER MILL.

Our six by twenty rolls weigh 175 pounds each, making 700 pounds to drive in a double set roller mill, as against 1800 pounds in the old style mill; this fact enables us to run with greater speed with no danger of hot journals, hence our greater capacity.

Produces better results, because there is less Pulverizing and Better GRANULATION, the point of contact being much less on a SIX-INCH ROLL than the old system; the STOCK BEING KEPT LARGER and more middlings produced on each reduction.

It is a well established fact that the object in gradual reduction milling, is to make as large a percentage of middlings as possible, and we claim to make MORE MIDDLINGS from a bushel of wheat THAN ANY OTHER ROLLER MILL, and we are prepared to prove our claim. The more MIDDLINGS the greater percentage of PATENT FLOUR, and better COLOR of ALL grades.

We build the only Roller Mill with **PATENT EXHAUST ATTACHMENT** for taking away all GENERATED HEAT, thus doing away with the GREATEST ANNOYANCE that millers have experienced in running the gradual reduction system, at the same time keeping the stock cooler as it passes to the Reels and Purifiers, consequently the separations are made more easily. This is an improvement that large as well as small mills will appreciate.

We use nothing but the Ansonia Chilled Iron Roll, with steel journals, ground, and run them entirely with LONG belts. With a feed device for throwing out and in easily, with a leveling device that is positive and perfect, and an adjustment so entirely positive, that feed can be stopped or cut-off, and put on again without re-adjusting rollers.

WE DO NOT DEPEND UPON THE STOCK TO KEP OUR ROLLS APART.

We have procured the services of the well-known millwright, Mr. J. M. Finch, and are prepared to furnish plans for our Gradual Reduction system on short notice, and fill orders for our Mills promptly.

We make both Corrugated and Smooth Rolls, Twelve, Fifteen, Eighteen and Twenty Inches Long and Six Inches in Diameter. Prices sent on Application.

Correspondence solicited. Address,

O. E. Brown Mfg. Co., Grand Rapids, Mich. U. S. A.

I. Q. HALTEMAN & CO., St. Louis, have a full line of our Rolls running at their shops and will take pleasure in making the breaks for all millers favoring them with a call.

I. Q. HALTEMAN & CO., Agents, ST. LOUIS, MO.

Gossip of a Traveling Inn.—XIII.

Traveling is a great source of education—education in that which makes one useful to the world, and therefore useful to himself. People are met under circumstances which place them open to inspection. Under no circumstances are people shown up more clearly as to their true inwardness than as travelers, hence with the facility for study and inspection, our success in dealing with people is assured. That is the line of work in which most of us are engaged. We are associated with and dependent upon those around us. A system of teaching the young which is now coming into use, is one in which the pupils are largely dependent upon one another. The teacher does not occupy the autocratic position which he does in the common way. The system of drawing from one another is the same system of education which one naturally gets into after leaving school, and associating with professional or commercial life. It is the same system from which one derives his business education, for instance. There is no reason why it should not be good.

Traveling develops a larger field for observation. The amount which is seen or the amount which is learned is not dependent upon the section of country traveled over; neither is it dependent upon the people whom we meet or are with. It is dependent upon the quality of the observer or traveler for absorbing facts or experience and associating all with cause and effect. The knowledge of a bare fact amounts to nothing in the way of benefit to its possessor. It is the history of facts which we want—the course of their development—the reasons, followed by the result. Such knowledge develops into broad principles which afford ready solution for all problems under all conditions. It meets emergencies. It is broad and universal. With all the opportunities which travel affords for information, for education, and for incidents of interest and amusement to those thus dependent upon them, how few are able to derive anything of this kind from their occupation. There are men, and they are in the majority, who can travel to San Francisco and back, and yet will have seen nothing, knowr nothing, or relate nothing which is of special interest or worth to themselves or their associates. Again there are those who, no matter where they are, or under what circumstances, are always at school. They are always picking up knowledge—always getting hold of something new. It is this class which develop into the heavy weights of commercial, professional, or political life. They get that education, they acquire that broadness of principle, from seeing so broadly everything which is to be seen; from hearing on such a broad, liberal basis, everything which people have to say, that they are in a position to take advantage of all occurrences around them in a way to reflect to their own advancement.

We can always find that for which we are looking, if we can keep our eyes open. The things which you and I want are always near by, if we know how to get at them. I remember of hearing Robert Burdette, the humorist, say that people could always see fun all around them; that he could look out over the hall in which he was speaking and see that for which he was looking; that he could see fun in the cars, on the street, everywhere and in everything. The next morning, which was cold and rainy and dismal, a friend of mine met him on the street, and asked if he could see any fun in that kind of a day. "O, well," said he promptly, "not for myself, but I can see lots of fun in this rain for the umbrella man." Now this is only one detail; fun is his business. It is successful business with him, because he has so trained himself that he can always find it; always see it in everything. There is the same element leading to success in the business which you or I may be engaged in, and the way to get at it is through intelligent association with reasons, facts and formulas. There is not even the breadth of a foot path between success and failure; there is no middle ground; there is no room to stand between. There is very little difference between what people call a great man and a very ordinary one. The great man walks on the right thread; the other is just a little to one side. There is really very little difference between people; it is simply a question of seeing what is on top of things which are around. We are very apt to look way down deep for the reasons which are skimming along on the surface just beside us. It takes people longer to learn this than anything else. Very often when we are in big trouble we look for a big reason, when it may be that that reason is so small that we are always stepping over it, and thus increasing our vexations.

I have it in mind that the things which are of interest to me as a traveler, which give satisfaction to those around me, as I relate it in a conversational way, cannot but be of interest to the general reader, if rightly told and without restraint. The mere fact of writing for the public press carries its own restraining influence with it. We forget that we are writing for the people to whom we talk, and the result is, in many instances, a growth of a style which is stilted, or may be large, or soft, or patronizing. Yet there are many interesting conversations which would not read well. The facial expressions, the gestures, and the personal magnetism are lost in print, and it is demanded that this deficiency be made up in some other way. Some writers meet this with a flowing, easy, mellow style, which is attractive to the reader for its elegance as well as its substance. Again there are those who adopt a strong rugged style of expression, using cold, massive English words, and rugged, startling comparisons. I have in mind a writer whose style is keen, sharp and cutting. It makes one think of steel traps and dog bites. It has a nasty viciousness in it. It is fascinating at the same time that it is annoying. But the best of all are those who go square at a subject, adopting common means, using straightforward English in a way to show that the thoughts come from a round headed, uniform man.

But all this is not what I had in mind to say. The wide departure from the original thought of this gossip is its own reminder, for the return to a milling idea. A gentleman was saying to me the other day that with the change from the older to the newer process of manufacturing, there had been a change equally great in the marketing of the goods. If one will think of this a little, he will see that it is so. The business of marketing flour is far different now from what it was ten years ago, yet the two changes in method bear no relation to one another. This gentleman, who is a St. Louis miller, said that the miller of to-day had his products scattered to many markets which were widely different in their disposition, and influenced and controlled by circumstances peculiar to each. A mill of St. Louis may have its southern, western, eastern, British and continental trade. There may be influences at work which will make one market better than another from time to time. There may be a shifting about from one section to another in this respect. For a time the south may pay the best prices, but the same influences which make prices higher there may be absent in New England, and because we may be able to advance prices for our southern buyers, is no reason why we should do the same thing in New England. Such a course leads a mill into an irregular, unsteady trade. At one time, while it may be having a brisk southern demand for flour, they will cut off their New England and foreign trade by asking all to pay the same price which the southern market warrants, and which the others do not. After a time, we will say, the southern market drops off. The miller will then wake up to the realization that his New England and foreign buyers have made connections elsewhere while he was feeding on southern clover. He had driven them off by trying to force them to accept conditions which were foreign to their locality. It is these conditions in each section which really make the prices, and the miller who fails to realize this will realize a less steady and less regular business than he who is more rational. The illustration may be twisted around so as to say that a condition which will justify an advance in New England may not be present or justify an advance in the south. As the buyers make the market we can not force unnatural prices upon them. Where one section pays a larger profit than another, both must be cared for, in order to be in the market when the order of things is reversed. When New England buyers will take flour at a profit, though less than foreign buyers, it would be bad policy to refuse them altogether. Allowing them to go elsewhere for their supplies, would leave a miller in the cold when he needed their trade. When one expects a regular demand for flour he must keep it in the market all the time, and the prices suited to the wants of the various localities, always excepting a condition which yields a loss.

This gentleman went on to say further that he could not see any good reason for running for any particular market alone, that each had its times of depression, but rarely all together, and, says he, "there is nothing like keeping your flour constantly in the minds of all your buyers. It does not take them long to forget you when you are not selling them goods."

WINTER WHEAT.

St. Louis, Nov. 30.

Facts About Scotch Fife.

The NORTHWESTERN MILLER has for a long time been fighting for the exclusive use of Scotch fife wheat for seed in the northwest—the land of No. 1 hard, the finest wheat in every way for milling and for making good flour, in the world. When fife wheat was first introduced here, its great yield was its highest recommendation. Millers could not use it to advantage, and would not pay as much for it as for club and other soft varieties. The farmers, delighted with its very prolific qualities, insisted on using fife for seed, and the result shows their wisdom. The difficulty of grinding it contributed more than any other single cause to the adoption of new processes which have since been perfected, so that to-day the best flour known in the markets of the world is made from the hard wheats of Minnesota, Dakota and Manitoba. A history of that fight and its consequences would be interesting, but meager data and lack of space forbid its publication here. It is a well established fact that the high reputation gained for Minnesota flour in former years was attained by using hard wheat exclusively in its production. This gave it its great strength over all other brands in the markets. When the middlings purifier first came into general use here, the value of Minnesota flour took a long stride ahead of any other brands then produced, ranging in price in the eastern markets from $1.50@2.00 per barrel above the best winter wheat flour. At that time Minnesota was raising a purely hard wheat (the old Scotch fife), and the extra value in the flour then was evidently the result of using this hard wheat exclusively in its production. It is a fact, also, that the millers here were then making money; a result to be attributed to the same cause—hard wheat. For two or three years past a change has been coming over the condition of things, and final results do not show up as well. Some mills that were able to show up net profits formerly of from $50,000 to $100,000 a year, have in the past two years lost or sunk money, and in examining the flour reports in New York, we see that there is now a margin of only from fifteen to thirty-five cents per barrel in favor of Minnesota high grade flour, over the best winter wheat flour, instead of $1.50, as was formerly obtained.

We have not far to go to discover the cause for this. Six years ago new varieties of soft wheat were introduced in Minnesota, and because they yielded well, rapidly grew in favor with farmers. The supply of hard wheat grew short and millers were forced to mix with soft grades to such an extent as to deteriorate the quality of their flours. Fife had been sown year aft r year on the same ground and there could be but one result—a heavy decrease in yield. This experience has been repeated in the case of the soft varieties which supplanted fife, and the ordinary farmer is now at a loss to know what to do about seed wheat. There is but one way out of the woods, and that is to rest the soil by pasturing it or planting it with something besides wheat for two or three years out of every ten.

It is now some twenty years since Scotch fife, which is the "flinty fife spring wheat" above referred to, was introduced in Minnesota, and since that time the progressive farmers of this very progressive state have experimented carefully and thoroughly with every variety of spring wheat known to agriculture. By this means they have proven conclusively that there is no soil which will grow the same quantity of wheat each year for ten or twenty consecutive seasons, unless it be in countries where irrigation is practiced exclusively, or where the same qualities drawn from the soil by wheat are annually replaced—the latter a most costly and practically impossible process. There are a few sections in Minnesota where the farmers have stuck to fife ever since it was introduced, and their crop this year was as large and the quality as fine as the first season that they raised fife. It is true that they have not grown wheat on the same ground every year. They have given the soil an occasional rest, sometimes for two or three years, first by pasturing it, and then by planting something else, so that it recovered what it had lost. A single well authenticated instance will serve as ample illustration: A veteran farmer in Eden Prairie, Minn., raised fife this year which threshed out twenty-one bushels per acre, on soil that was in corn last year and had been pastured for two years previous to planting to corn. A piece of land lying beside the one under notice had been in wheat every year for ten or more years, and the yield this year was ten bushels per acre, in place of twenty bushels ten years ago. Every variety of soft wheat has produced the same results—a heavy yield for a few years, with a steady diminution, which in ten years amounts to 50 and sometimes to 60 or 70 per cent, as compared with the first year.

When we come down to figures, we find that there is a group of counties in Minnesota in which a large acreage of fife wheat has been raised almost exclusively ever since its introduction. There are other counties which have held on to fife, but the five here given are selected because their large acreage makes them most noteworthy. The figures are as fellows:

CARVER COUNTY.

Years.	Total acreage.	Total yield, bus.	Average per acre.
1870	13,892	256.334	18.37
1871	15,629	230,646	14.76
1872	17,694	352.153	19.90
1873	19,988	381,259	19.07
1874	20.553	376,366	18.31
1875	21,031	517,092	24.53
1876	23,002	406,510	17.67
1877	25.547	630,157	24.60
1878	28,597	555,508	19.42
1879	30,437	602 318	19.78
1880	34,008	733,062	21.56
1881	34,828	561,789	16.13
1882	32,216	607,479	18.85
1883	34,561	622,098	18.00

This is a higher average than that of any of the newer counties of the state, in all of which much soft wheat is grown, and in some of which it is almost exclusively grown.

SCOTT COUNTY.

Years.	Total acreage.	Total yield, bus.	Average per acre.
1870	17,164	285,077	16.60
1871	18,145	225,058	12.62
1872	21,158	324,595	15.34
1873	21,118	329.417	15.59
1874	22,689	393,839	17.35
1875	23.083	442,462	10.50
1876	25,868	314,408	12.15
1877	28,286	617,978	21.85
1878	30,029	500.911	16.66
1879	35.300	578,174	16 40
1880	37.743	673,585	17.85
1881	40,728	616,789	15.14
1882	40,175	718,186	17.87

WRIGHT COUNTY.

1870	9,485	144,021	15.18
1871	11,788	106.703	9.05
1872	13,859	220,378	15.90
1873	15,851	256.88	16.15
1874	16,961	269,006	15.86
1875	14,468	298,752	20.64
1876	19,265	291,888	15.15
1877	19 933	290,926	15.04
1878	31.139	584,926	18.77
1879	35.349	554 308	15.69
1880	39,075	702,869	17.68
1881	38,659	531,808	13.75
1882	36,690	635,181	17.31

MCLEOD COUNTY.

1870	8,290	113.629	13.07
1871	10,154	112,696	11.10
1872	12,381	225,686	18.22
1873	16,557	277,010	16.73
1874	18,540	222,162	11.98
1875	17,185	307,702	17.90
1876	22,224	272,076	12.29
1877	32,488	510,481	15.71
1878	36,609	497,420	10.86
1879	40,778	684,256	16 78
1880	23,694	196,827	8:30
1881	42,207	480,425	11.38
1882	34.988	549.795	15.71
1883	41,720	667,320	16.00

HENNEPIN COUNTY.

1870	29.315	466,226	16.14
1871	19.343	174,422	19.17
1872	20,268	341,054	16.82
1873	24.356	435,046	17.86
1874	25,855	378,929	14.65
1875	28,184	520,975	18.48
1876	29,806	381,290	19.50
1877	33,104	677,746	20.50
1878	41,951	780 840	18.16
1879	45,711	644,227	14.09
1880	49,260	876,163	17.79
1881	52,342	664.214	12.69
1882	40,941	653,884	15.97

The figures cannot be equaled by any similar group of the purely soft wheat counties, and even if they could, there would remain against the soft wheat the all important difference in price—10 to 20 cents per bushel less than No. 1 hard fife. The soft wheat is liable to smut and thus grade down so as to be almost worth-

less. In this connection we cannot do better than quote our previous utterances on this subject:

"Smut is a disease to which soft wheat is very susceptible. This has been thoroughly demonstrated by experience. So far as is known, no systematic scientfiic research has been made as if to its cause or nature. Millers who have handled all varieties of wheat and noted the difference between that badly smutted and that which is almost free of smut, agree that there is as much variation in this cereal disease as there is in any human disease. Wheat which is liberally besprinkled with smut balls can be pretty well cleaned by suction machinery, but wheat which is less visibly affected can not be cleaned and will not make good flour. Open the door of a car of badly smutted wheat and its peculiar odor is very strong, but another car in which the disease is found in its early stages will have little or no smell, and to the casual observer presents a good appearance, yet the latter car is the most unfit for milling. Smutty wheat was never heard of in Minnesota until soft varieties, mainly club, were introduced, and smut has not yet invaded the fields of the farmer who has stuck to fife through thick and thin."

Fife is the wheat which first gave Minnesota her reputation for big yields. The only variety which approaches it is what is known as the Blue Stem, which has a large kernel, medium color, yields if anything better than fife, is quite hard, and with the slim testing thus far had, promises well. The tendency of all wheats, as of other seed, is to run itself out. Experience has shown, however, that an annual change of seed is profitable, even though the fresh seed be grown within thirty or forty miles. David Williams, the veteran miller of Hennepin county, a strong advocate of Scotch fife, of annual change of seed and of careful selection of seed, suggests that seed wheat should be subjected to a strong blast, by means of which all soft, light grain would be separated from the hard, healthy and consequently heavier portion. He asserts that where fife wheat has been condemned by reason of light yield, the cause will be found in the fact that there was no rotation of crop, no change of seed and no resting of the soil, and, worse than all, no care exercised in selection of perfect grain for seed. Fife is hardiest of all wheats in respect to injury from excessive moisture. Many leading Minnesota millers and elevator companies have inaugurated the practice of reserving the best wheat from each crop, carrying it until spring and selling it for seed at actual cost, so firmly are they convinced of the necessity for planting pure seed. The Manitoba authorities admit Scotch fife for seed duty free, and the Canadian Pacific railway transports seed fife free of charge, leaving full tariff rates upon soft seed wheat. This example should be imitated by all northwestern railways, and the matter should receive proper attention and action by the authorities of Minnesota and Dakota. It may, perhaps, be true that fife exhausts the soil more rapidly than the soft varieties, but the farmer who expects to raise a good crop of wheat from the same field year after year, is a mere agricultural machine, deserving no sympathy for his failure. Careful rotation of crops and as much manuring as possible will keep up the yield and quality of the wheat. Some of these days we may be able to raise the English average of 26 bus. per acre, instead of our present average, 14 bus. One thing is certain, and that is that if the reputation of the hard wheat section and of the northwestern flour is maintained, it can only be by the exclusive use of fife wheat for seed. All of the softer sorts for which larger yield is claimed, must be discarded. Rotation of crops and better modes of securing the grain when ripe, are necessary. The northwestern farmer must learn this lesson well and if he would avert all danger of smut, discard soft wheat for seed and stick to fife. Tests have been made in which flour made from purely hard wheat has given from 25 to 40 pounds more bread per barrel than that made from soft wheat. This being a fact, there is, then, that much more intrinsic value in the hard wheat flour.

Another great point in wheat raising, which applies equally to hard and soft varieties, winter and spring, is that too much seed is sown, as a rule. We can not offer a stronger argument in support of this assertion than by quoting the letter of a prominent New York farmer, as follows:

"In the winter of 1853 and 1854, being offered a high price for my wheat, which was a new and promising spring variety, I sold myself so short that when I came to sow in the spring I had left scant five pecks per acre for my own use, and I did not know what to do, as heretofore I had followed the practice of the farmers about me, sowing eight pecks per acre, and I had the opinion that a much less quantity would result in a failure. However, after pondering over it, as I did not wish to seed any other kind of crop, I concluded to risk it, and in harvest was agreeably surprised to find I had a yield of 49½ bus. of thoroughly cleansed grain per acre. I say surprised, for the greatest yield I had ever got from eight pecks was 33 bus.—not often over 30, and sometimes not over 25 bus., which was regarded as a great yield. I was so well satisfied with this accidental experiment that I determined to try it again, which I did with nearly as good results; and from that time to this I have not sown over five pecks per acre, and sometimes only four, and seldom fall below 46 bus. per acre. This, you will see, is not a single experiment, but one of 26 years' continuance."

MILLING NEWS.

A grist mill is contemplated at Jessup, Ga.

A flour mill is to be erected at Rogersville, Tenn.

Corn sells for $2 a bushel in Tamaulipas, Mexico.

Citizens of Sanborn, Dak., talk of building a grist mill.

Morris Glark, flour dealer of Oxford, Me., is insolvent.

The Blue Valley mill, at Manhattan, Kas., is in operation.

Morganville, Clay county, Kas., is to have a flouring mill.

Jacob Leuf, of Vermilion, Minn., has started up his grist mill.

The mills at La Crosse, Wis., were running full time last week.

Sage & Co., millers, Beardstown, Ill., have suspended payments.

John T. Walters, of Easton, Pa., has received a patent on a purifier.

There is a great scarcity of grain cars at all railway stations in Nebraska.

S. N. Bateman, miller of North Salem, Ind., was recently burned out; insured.

E. L. Burwick, operating a corn and saw mill at Limona, Fla., has sold out.

Lewis C. Springer, of Wilmington, Del., has received a patent on a grinding mill.

Leavenworth, Kas., is to have a new elevator to replace the one recently burned.

Jas. E. Kimball, of Vicksburg, Mich., has invented a grain weigher and measurer.

Beaulieu Hadden, grain broker of Montreal, Que., is reported to have left the place.

Jos. Elder, of Peoria, Ill., has received a patent on a device for packing bran, etc.

Dennis & Slough, millers of Westerville, O., have been succeeyed by Dennis & Johnson.

Peter Harnist, of Marine, Ill., was last week granted a patent on a "flour mill feeder."

Among the patents issued last week was one on a grain separator to Wm. Macy, of Monroe, O.

Royce's mill at Fremont, O., was burned on the 19th inst. Loss, $15,000; insurance, $11,000.

W. H. Kingsley, grain merchant, Allenville, Ill., has failed. Liabilities, $26,000; assets, $13,000.

The patent office last week issued a patent to Chas. A. Smith, of Wedowee, Ala., on a flour bolt.

A patent has been granted Samuel K. Todd, of Eugene, Ind., on a machine for hulling and cleaning grain.

Gordon, Barker & Co., millers of Sparta, Ill., have assigned. Liabilities, $160,000; assets, $110,000.

Agent Sheldon, of the Blue Springs Milling Co., of Kansas City, has flown, leaving a shortage of $20,000.

A new grist mill has recently been started in Rock Dell township, Minn., near Rochester, by Roder & Lamp.

A cargo of 100,000 cwts. of American wheat has just arrived at Laube, Bohemia, the first ever imported in Austria.

The Grange mill, at Waterville, Minn., is running nearly full time, and turning out about 125 bbls. of flour daily.

The production of the Milwaukee mills from Jan. 1 to Dec. 16 was 795,000 bbls. flour, against 1,346,000 bbls. in 1882.

The farmers of Plympton, Man., have decided to erect a large mill of their own, so as not to be dependent on the millers.

Arthur L. Battson, of Morrisburg, Ont., Can., is the inventor of a press for sacking bran, sawdust and other substances.

Andrew F. Johnson, of Stillwater, and John P. Turner, of St. Peter, Minn., have invented a combined bag-filling and weighing machine.

P. D. Tobie's mill at Troy, Kas., with most of its contents, was burned on the night of Dec. 22. Loss over $25,000; insurance, $12,000.

The rate on corn from Kansas City to St. Paul and Minneapolis has been established at 15 cents per 100 pounds, and that on wheat at 17 cents.

A number of new mills will probably be built in Manitoba and the British Northwest during next year. Some of these will be very large ones.

The Ogilvie Milling Co., of Manitoba, has decided to reduce the price of handling the grain of this year's crop, in their elevators, two cents per bushel.

During the five months ended Dec. 1, the exports of flour and wheat from the Pacific coast were one-fourth of the total exports from the United States for that period.

M. Livingston's new mill at Paducah, Ky., was burned on the 14th inst. Loss, $50,000; insurance, $25,250. Spontaneous combustion is said to have been the cause of the fire.

Memphis, Tenn., has two new enterprises of importance in progress, a flour mill with a capacity of 150 bbls. per day, and a grain elevator with a storage capacity of 55,000 bus.

Gordon, Barker & Co, millers, at Sparta, Randolph county, Ill., have assigned. Liabilities, $160,000; assets, $110,000. The liabilities are chiefly in New Orleans and Sparta.

The receipts of wheat at the Rochester, Minn., elevators last week were moderately large, in spite of poor roads and wintry weather, probably due to a slight advance in prices.

The elevators of Atchison, Kas., are so crowded with grain that orders have been sent to country buyers to hold up for a few days. There are frequently 200 cars on the tracks there.

The corn mill, elevators and warehouse of Tyson Bros., at the south side harbor, in Baltimore, Md., were almost entirely burned on the morning of Dec. 20. Loss, about $70,000; insured.

A new grist mill is being erected at Glenora, Man. The mill will be fitted with two runs of stone, and is expected to be in operation in about six weeks. Blain & Reeves are the proprietors.

The machinery of the new Espenschied elevator, at Hastings, Minn., is all in place. A wire cable has been run from the Gardner roller mill to the new elevator, furnishing the power for the latter building.

Mark Sheppard, engineer of the Cobb mill at Marine, Ill., fell forty feet while adjusting guys upon a smoke stack, breaking one leg in two places and sustaining internal injuries. There are hopes of his recovery.

The elevator of Norish & Sons, at Appleton, Minn., was burned last Saturday night, with 18,000 bushels of wheat. Loss $25,000, part of it being sustained by parties who owned stored wheat; insurance light.

H. R. Jones, a banker at Depere, Wisconsin, has been driven to the wall by wheat speculations. His liabilities are over $50,000, and his assets only nominal. The losers are nearly all poor depositors—farmers and others in the immediate vicinity.

The creditors of David Plewes, miller, of Brantford, Ont., have agreed to accept 40 cts. on the dollar, spreading over two years. The compromise was effected on liabilities of $22,000, principally to farmers who had deposited money with him. The banks are well secured.

In addition to the extra ten pounds of wheat that Canadian millers are allowed to import for each barrel of flour exported, the government has given encouraging assurances as to all demands of the millers respecting a reduction or absolute abolition of the grain duties.

The boiler of the steam at Blue Earth City, Minn., owned by J. Schimek, blew up on the 18th inst. No lives were lost, but the engineer, B. Crandall, was somewhat injured. The loss was $1,500, without any insurance. The cause of the explosion is supposed to have been a bad boiler.

The sale is announced of a one-half interest in the St. Louis *Miller* and St. Louis *Commercial Gazette*, commercial and milling journals, to C. K. Reifonider, late business manager of the *Age of Steel*, who, with K. H. Stone, one of the founders of both papers, will conduct them in the future. Both papers will be remodeled.

Some of the bulls in wheat argue that the flour making power of the wheat crop of this year—winter and spring—is 10 per cent below that of last year's crop, and for this reason bulls in the trade knock off the crop 59,000,000 bus., which they claim would leave the crop practically 380,000,000 bus. instead of 420,000,000, the government estimate.

The new foundry building of the Merriam & Houston Iron Works, at Beloit, Wis., was considerably damaged by fire on the 17th inst. C. F. G. Collins, manager of the works, died very suddenly the next evening of apoplexy or hemorrhage. It is supposed that Mr. Collins burst a blood vessel while running to the fire the previous day. He was 44 years of age, and had been mayor of the place.

Lane & Son, grain merchants and option brokers of New York city, were forced to assign to Wm. B. Putney on the 17th inst., by a sharp advance in grain. Their liabilities are reported at about $300,000, and preferences, aggregating $115,000, were made as follows: G. K. Kennedy, $33,000; E. F. Lane, $18,062; Susan A. Kennedy, $24,000; S. V. Tripp & Co., $1,600; Hollister, Crane & Co., $3,000; L. B. Shaw, $5,000; the Grain Warehousing Co., $8,000; Henry Dusenbury, $3,000; S. D. Mangum and S. S. Sprague & Co. Two or three other well known houses are reported to have been badly squeezed at the same time.

The new Mokena roller mill, at Lancaster, O., of 150 barrels capacity, was recently started up successfully under the direction of J. P. McConnell. The mill is built upon the Livingston system, using the Gilbert combination mill for breaks, and the Livingston belted mill for finishing. The machinery complete, together with plans and bolting diagram, were furnished by Stout, Mills & Temple, of Dayton, O. Martin, Fismer & Rietter, the proprietors, did the millwright work, under the superintendency of M. S. Plant. The list of machinery includes a six-break Gilbert combination mill, twenty-four inch rolls; three double Livingston mills; one pair of stones for corn; thirteen bolting reels; two Excelsior centrifugals; three Smith purifiers; one Excelsior and one Garden City purifier; one bran duster, together with all necessary cleaning machinery, flour packers, etc.

The publication of information relative to the resistance being made by the owners of grain dumps, to the claim of Jas. Harper, of Peoria, Ill., to royalty as patentee, has created a good deal of commotion. Harper has been taking considerable money from persons using the dump plan of tilting and unloading wagons, taxing each $50 royalty. A firm at Kappa, Ill., determined to resist the suit brought against them by Harper, and have formed a strong and wealthy syndicate to fight the case. Since the publication of the facts they have received letters from all over the country offering assistance and giving information. The syndicate have employed able counsel, Thos. Hendricks, of Indiana, being in the array. The Illinois Grain Dealers' Association, of which C. W. Johnson, of Kankakee, is secretary, and the Southwestern Grain Dealers' Association, of Iowa, are also taking an active part against Harper in these cases, and a mass of testimony has been collected that is expected to effectually dispose of Harper and his dumps for all time to come.

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JOHN S. PILLSBURY.

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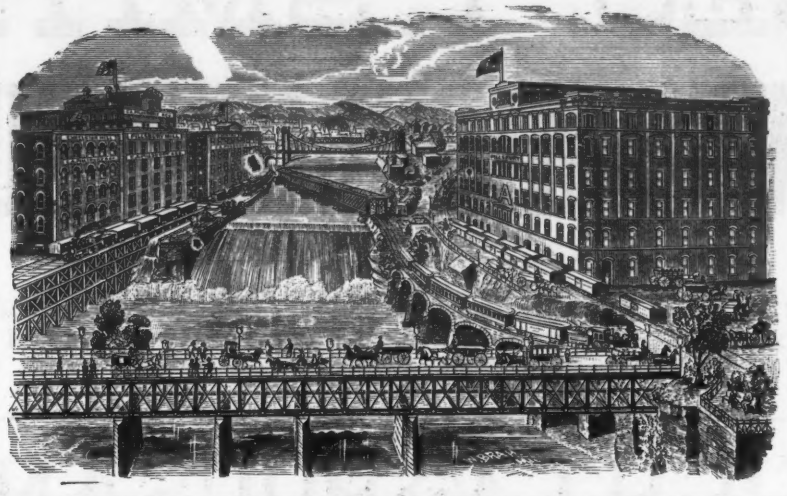
MANUFACTURERS OF

Finest Brands of Flour

From Choice Selected

HARD SPRING WHEAT.



OUR BRANDS:

Patent, "Pillsbury's Best." Bakers', Kanabec, Pillsbury, Crown, Reform, Carleton.

Daily Capacity, 7,500 Barrels.

MERCHANT MILLERS

MINNEAPOLIS, MINN., U. S. A.

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I. Q. HALTEMAN & COMPANY,

ESTABLISHED 1857. MANUFACTURERS OF

Steam Engines

AND FLOUR MILL MACHINERY

AND ALL ARTICLES, INCLUDING WOOD AND IRON WORK USED IN CONSTRUCTING AND OPERATING FLOUR MILLS.

We can adapt the Roller system to small mills as well as large, and can furnish approximate or close estimates to millers wishing to build new mills or remodeling old mills, having experienced millers for that purpose. We are agents for and have in stock a full line of

Rickerson's Non-Cutting Noiseless Roller Mills,

GEO. T. SMITH MIDDLINGS PURIFIERS,

THE MARTIN CENTRIFUGAL REELS,

Richmond's Grain Cleaning Machinery and Bran Dusters,

KIRK & FENDER'S DUST CATCHERS, and

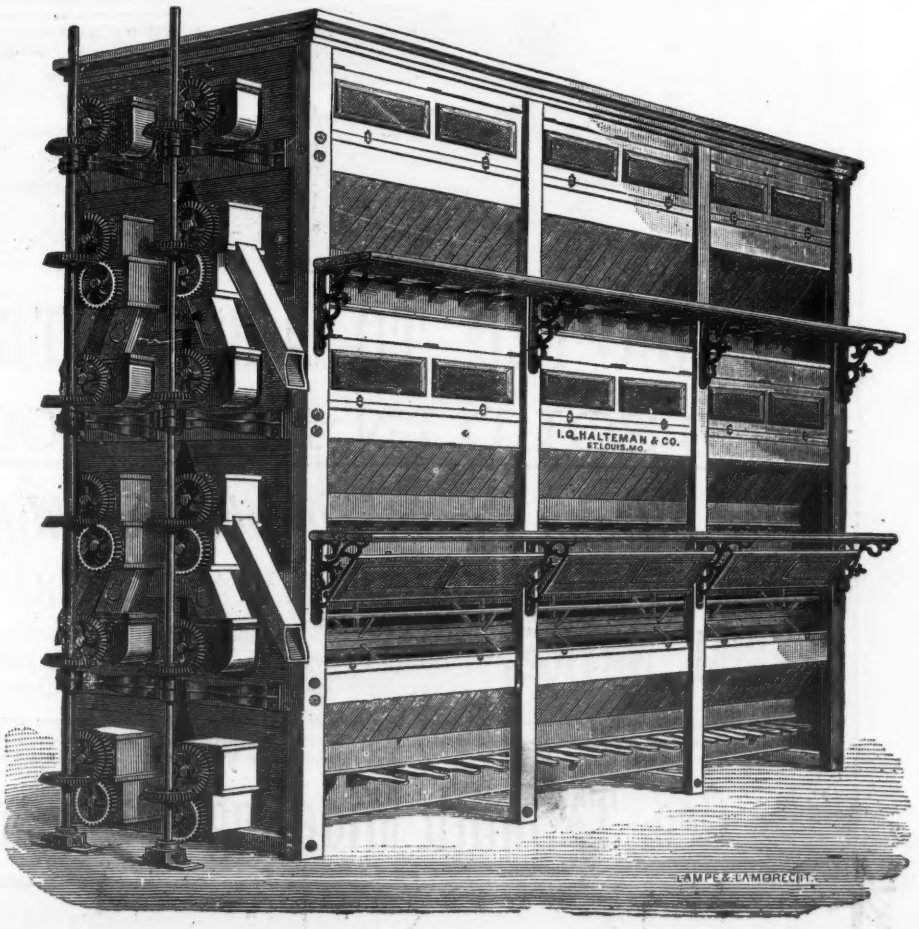
COOK'S IMPROVED FLOUR and BRAN PACKERS.

Millers can bring their own wheat and they themselves can make any number of breaks they wish, and thus be convinced that the Rickerson 6-inch Roll is the best.

We have a full line of Rolls running at our shops, and will take pleasure in making the breaks for all millers who will favor us with a call.

Send for Illustrated Catalogue, Price and Pattern List.

Nos. 1611, 1613 and 1615 South Third St., ST. LOUIS.



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IMPROVED MIDDLINGS PURIFIER

The Geo. T. Smith Purifier was the first successful Sieve Purifier ever used in this or any other country. The demand for it has steadily increased from the day the first machine was started.

More Than **EIGHT THOUSAND** Are Running

IN THE UNITED STATES ALONE.

EXCLUSIVE FEATURES:

Patent Automatic Brush.
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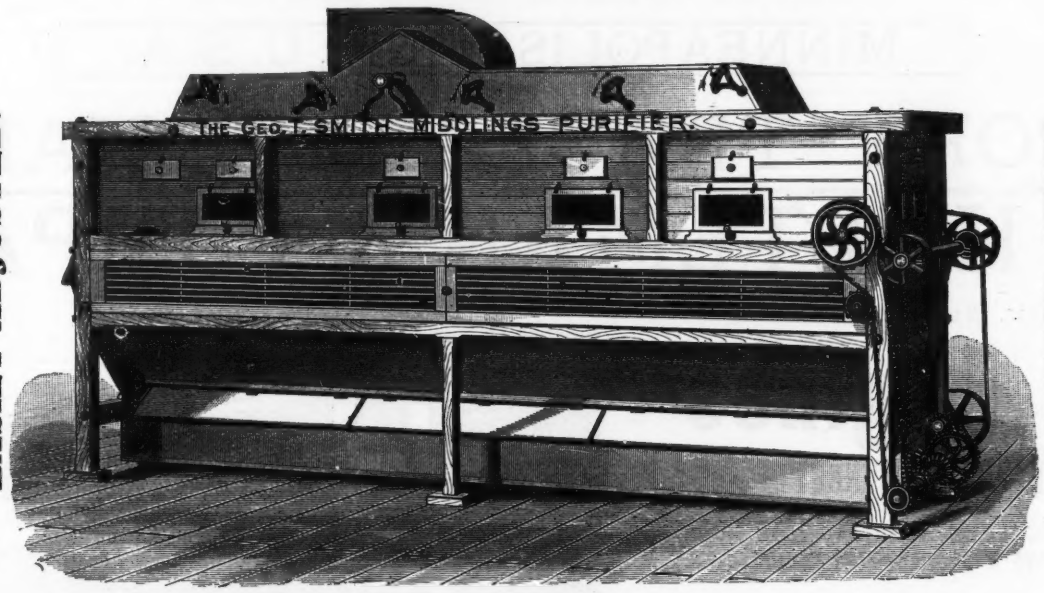
EASILY ADJUSTED.



LIGHT RUNNING.

EXCLUSIVE FEATURES:

Patented Application of Graded Controllable Air Currents.
Patent Cloth Tightener.
Patent Double Conveyors, in the Same Horizontal Plane.

ADAPTED TO ALL SYSTEMS OF MILLING.

3000 SOLD IN 1883. 3000 SOLD IN 1883.

Fifteen Sizes, Suitable for Mills of all Capacities.

SINGLE, DOUBLE AND ASPIRATOR MACHINES.

SPECIAL NOTICE.--- The Geo. T. Smith Purifier is licensed under all patents owned by the Consolidated Middlings Purifier Co., and under every patent granted in the United States covering any features of value as regards the convenience economy and efficiency of a Middlings Purifier.

We are giving greater attention than ever before to the mechanical details and material used in the construction of our machines, having substituted **steel shafting** for iron, and adopted **hard wood** for frames; but, notwithstanding the immense outlay incurred in securing protection under all existing patents, and the cost of constant improvements, **Our Prices Remain Unchanged.**

Geo. T. Smith Middlings Purifier Co., Jackson, Mich.

MARKETS

MINNEAPOLIS, Dec. 26.

Business on 'change the past week has been rather quiet. The transactions were comparatively light and no important fluctuations are to be noted. Receipts of wheat have averaged smaller than on previous weeks, while the shipments have been rather large for this market. Owing to the influence of the holiday season a temporary feeling of weakness has existed, beneath which an under current of strength is shown, which it is believed will become more prominent in the near future.

The following were the highest and lowest prices by grade on 'change during the week ending to-day, together with to-day's closing prices:

WHEAT.	Highest.	Lowest.	Closing.
No. 1 hard	1.02½	1.01	1.01½
" 2 "	.95	.94	.94
" 1 northern	.92½	.91	.91½
" 2 "	.88	.87	.87

BRAN—$8.75@$9 per ton in bulk.

SHORTS—$10.50@$11 per ton.

FLOUR.—The fortnight of dullness which accompanies the holidays each season is felt at all the mills, but there is a stronger undertone than has been noted for some time, and while trade is light in all lines, slightly better figures are being obtained for fancy patents. The eastern demand is fair, export inquiry dull and local trade quiet. Quotations at the mills are as follows: Patents $5.75@6.50; straights, $5.10@5.50; first bakers', $4.60@5.10; second bakers', $4.00@4.50; best low grades, $2.25@3.50; red dog, $1.80@2.10.

BOSTON, Dec. 27.—The export inquiry for future delivery continues fair, but the domestic demand is light and the market is inactive, though not more so than usual at this season. Quotations: Minneapolis patents, $7.00@7.10; straights, $6.30@6.40; first bakers', $5.60@5.75; red dog, $2.70@2.90 in bags.

PHILADELPHIA, Dec. 26.—Flour quiet but steady; winter patents, $6.20@6.70; Minnesota bakers', $5.25; do straight, $5.75; Minnesota patent process, $6.62½@6.75. Rye flour steady and in fair demand; choice, $3.75. Buckwheat flour dull; $3.26@3.50 per cwt.

LONDON, Dec. 10.—The *Miller* says: Something like old-fashioned December weather has been enjoyed in the last week, and the sight of snow and touch of frost have given just a little warmth to the markets, that had become flabby by the openness of the autumn season. Not that prices have become better or demand stronger, but confidence has somewhat strengthened. This is a gain, and comes at a time when a little healthy freedom in buying and selling is much wanted. The terms of buying wheat are now so easy that stocks might well be kept up, and so secure regular trade throughout the winter. An improved demand for flour must, however, be experienced before millers will be inclined to buy wheat with freedom. The English farmer is thoroughly discontented with the rates obtainable for his wheat and barley, and hopes for better money in the new year. The new year, however, is not as yet encouraging, since it offers new supplies at the prices which the old year has fixed. There is not much change in the wheat markets of France. As regards the Parisian market, quiet prevails. At Marseilles very little business is doing. Bordeaux is quiet. Havre is steady; Nantes slow. In Germany Berlin is rather in buyers' favor, wheat making only 39s. 6d. per qr. At Hamburg, 38s. 9d., a still lower price, is quoted. From India we hear that at Bombay business is slack. The supplies of ready produce at the port are light, and wheat has lost its late advance, with a reduced enquiry on the part of shippers. At Calcutta the state of things is not unlike that prevailing at Bombay. The quantity of wheat on passage from India is now 306,000 qrs., against 406,000 qrs. a month ago, 680,000 qrs. two months ago, and 766,000 qrs. three months ago. The large stocks known to be held in London, Liverpool, Marseilles, and Hull naturally discourage further shipments.

***

Some of the Chicago speculators are going over to the bear side on wheat. Robt. Lindblom says that on a 5,000,000 visible supply of wheat and the price at $1.12 he was a bull, but now, with over 30,000,000 bus. and the price down to $1.06, he can't see any reason for an advance. He also believes that Chicago will have 15,000,000 bus. actual wheat on her hands by spring and no export demand to look forward to for the next six months. J. B. Hobbs & Co., say: "Wheat continues to pile up and pile up all over the world, and speculators continue to buy it because it seems cheap, but there is very little legitimate demand for it. The accumulated stocks exceed anything in the history of the trade. For ourselves we cannot see the least encouragement to buy it. We believe that sooner or later there must come an avalanche of wheat on our market, and prices will go lower than the most sanguine bears expect."

Taganrog wheat was quoted last week as sold in London at the extraordinarily low price of 33s ex-ship. A Liverpool letter notes the sale of No. 1 Indian club at 35s 6d, cost, freight, and insurance, which is equal to about $1.06½ per bu. Another letter says that but little Irish demand can be expected for our corn, with potatoes and other vegetables so plenty and cheap as now. Good potatoes are selling at 18d, and turnips at 7@8d per 112 pounds. This is a little less than 26c per 80 pounds (the bu) of potatoes. English dealers in wheat say that they see no chance for anything like a speculative movement till their stocks have been reduced at least one-half, and that free shipments from this side now would make it impossible to sustain even the present low range of prices.

The New York *Sun* takes a slightly different view, saying: "The grain and provision speculation in Chicago continues as lively as ever. The price of wheat is sustained solely by manipulation, and cannot keep its present level much longer, for there is an ample supply of wheat everywhere. But the bull speculation in corn, oats and rye is quite justifiable. The scarcity and bad quality of this year's corn crop must put this cereal to 70 or 75c a bushel by next spring. Oats will naturally follow the advance in corn, as being a substitute for corn, while the crop of rye has been short everywhere, and Germany and Russia live almost exclusively on rye bread. As far back as two months ago a member of the well known shipping firm of Seager Bros. said that rye was the only American grain for which there was a genuine demand in Europe and which could be exported with profit. The speculation in that staple has not begun yet, but when it does begin we shall see prices jump very lively. As a rule, rye sells from 15 to 20c a bushel higher than corn. To-day they are selling at about the same price, so that there is plenty of room for a legitimate advance."

A St. Paul commission merchant writes the Chicago *Tribune* that he does not believe more than 25 per cent of the Minnesota wheat is out of the farmers' hands. "The largest growers have not sold a bushel, but borrowed money to carry them over. The farmers in Minnesota are feeding their hogs and cattle on potatoes. They say they can realize more out of their potatoes by feeding them than by selling them at 25c per bushel. They have had the largest crop ever known in the state."

The visible supply of wheat at the principal points of accumulation Dec. 15, 1883, was as follows:

In store at—	Bus.	In store at—	Bus.
New York	7,831,426	Boston	135,191
" Afloat	269,000	*Toronto	84,835
Albany	4,800	Montreal	201,104
Buffalo	1,637,000	Philadelphia	1,189,971
Chicago	10,931,310	Peoria	7,405
Milwaukee	2,369,994	Indianapolis	181,500
Duluth	2,319,000	Kansas City	505,094
Toledo	2,141,629	Baltimore	2,240,645
Detroit	374,645	On rail	516,290
Oswego	80,000	St. Paul	1,100,000
St. Louis	1,902,561	Minneapolis	2,800,000
Cincinnati	194,821		
Dec. 15, 1883			39,018,321
Dec. 8, 1883			38,085,933
Dec. 3, 1883			35,727,944
Nov. 27, 1883			36,501,000
Dec. 16, 1882			19,781,437
Dec. 17, 1881			18,246,593

Freight Rates and Exports.

Ocean freights have declined 20 to 30 per cent in the last fortnight, and the market is weak. The following rates, reported by Henderson Bros., agents of the Anchor line, were current on the New York market during last week:

Ports.	Flour, per 100 lbs.	Wheat, per bus.
Liverpool	12.66¢	6.0¢.
London	16.88¢	7.5¢.
Glasgow	19.69¢	7.0¢.
Bristol	21.09¢	8.5¢.

Shipments from New York last week were as follows: Wheat, 312,785 bus.; flour, 136,004 bags.

Following are tariff rates on wheat and flour by rail, Minneapolis to Chicago, New York and Boston:

To Chicago, per 100 lbs	20c
To New York, " " "	50c
To Boston, " " "	55c

Rates are being cut east of Chicago to such an extent that these quotations furnish no guide. The air is full of rumors about cuts between here and Chicago and this, with other contingencies about to arise, presage a red hot war between the Chicago lines early in January.

Buckwheat Flour.

The old method of grinding was with the shuck on, grinding slow and low, so as to get all of the flour at one operation, consequently the flour often bore a strong resemblance to wood ashes, and sometimes felt something like soft soap; and when baked into cakes was as solid and indigestible as sole leather, but this was generally the work of the apprentice, says the *Mechanical News*. The first improvement was to grind higher, take the middlings out through a piece of coarse cloth at the tail of the reel, regrind them and mix the flours. This enabled the miller to improve the color and preserve the yield. The next improvement was to use a short scalping reel from four to five feet long, clothed with No. 1 cloth, except eighteen inches No. 10 wire at the tail. The flour and middlings from the No. 1 cloth were sent to the reel as above, the bran came through the No. 10 wire and the shucks passed the tail and could be spouted separately or with the bran as desired, but good farmers soon learned that there was no nutriment in the shuck, and that it only acted as an irritant in the stomachs of the cattle. The reel for flouring was usually ten feet long, clothed according to the fancy of the miller with cloth ranging from No. 7 to No. 10, excepting about eighteen inches No. 4 at the tail for middlings. The best results with this or any other method were obtained by putting the cloth entirely on the inside of the ribs, or from the outside of one rib to the inside of the next. They do not require anything to keep the cloth open, for a sharp, granular buckwheat flour bolts very freely. By this system a good flour can be made from well scoured but unshucked buckwheat, but it will be more or less specky and off color.

Many plans have been tried to get rid of these specks; the most noticeable was to grind high enough to just granulate the interior very little, and pass the product to a reel graded from No. 5 to No. 00, subjecting each grade excepting No. 5 separately to a purifying by suction or blast, after which they are spouted together to the buhrs for grinding, and bolted as before, but in this case it is better to grind somewhat closer so as to leave no good particles adhering to the yellow skin or bran. Some have tried purifying the fine middlings on purifiers with good results, but there is not the same advantage gained as there is in wheat middlings, as the specks are of about the same specific gravity as the middlings themselves.

Gratiot's Improved

WHEAT HEATER!

Thoroughly and properly toughens the bran on the *hardest* or *driest* wheat; heats the wheat *evenly* and improves the flour and milling generally, as no other Heater in the market does. Send for Circular.

GRATIOT BROS.
PLATTEVILLE, WIS

DEAL'S CORUNDUM POLISHER

A tool for Cutting, Leveling and Polishing the Furrows and Face of millstones.

Received the Highest and only Award given For Polishers at the Millers' Exposition, Cincinnati, June, 1880.

For facing down high places on the buhr, this tool has no equal, and can be done much better and in one-sixth the time than with the mill pick. It is much larger, cuts better, can be used on either face or furrow; can be used until the corundum is entirely worn out on one side and then turned on the other side. Has over four times the amount of corundum, and when the corundum is worn out can be replaced in the handle at a small cost. Sent by express, $3.50. Satisfaction guaranteed or money refunded. Address

HORACE DEAL, Bucyrus, O.

SHORT LINE.

The use of the term "Short Line" in connection with the corporate name of a great road, conveys an idea of just what is required by the traveling public—a Short Line, Quick Time and the best of accommodations, all of which are furnished by the greatest railway in America,

CHICAGO, MILWAUKEE AND ST. PAUL.

It owns and operates over 4,500 miles of road in Northern Illinois, Wisconsin, Minnesota, Iowa and Dakota; and as its main lines, branches and connections reach all the great business centres of the Northwest and Far West, it naturally answers the description of Short Line, and Best Route between

Chicago, Milwaukee, St. Paul and Minneapolis.
Chicago, Milwaukee, La Crosse and Winona.
Chicago, Milwaukee, Aberdeen and Ellendale.
Chicago, Milwaukee, Eau Claire and Stillwater.
Chicago, Milwaukee, Wausau and Merrill.
Chicago, Milwaukee, Beaver Dam and Oshkosh.
Chicago, Milwaukee, Waukesha and Oconomowoc.
Chicago, Milwaukee, Madison and Prairie du Chien.
Chicago, Milwaukee, Owatonna and Faribault.
Chicago, Beloit, Janesville and Mineral Point.
Chicago, Elgin, Rockford and Dubuque.
Chicago, Clinton, Rock Island and Cedar Rapids.
Chicago, Council Bluffs and Omaha.
Chicago, Sioux City, Sioux Falls and Yankton.
Chicago, Milwaukee, Mitchell and Chamberlain.
Rock Island, Dubuque, St. Paul and Minneapolis.
Davenport, Calmar, St. Paul and Minneapolis.

Pullman Sleepers and the *Finest Dining Cars in the world* are run on the main lines of the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, and every attention is paid to passengers by courteous employes of the Company.

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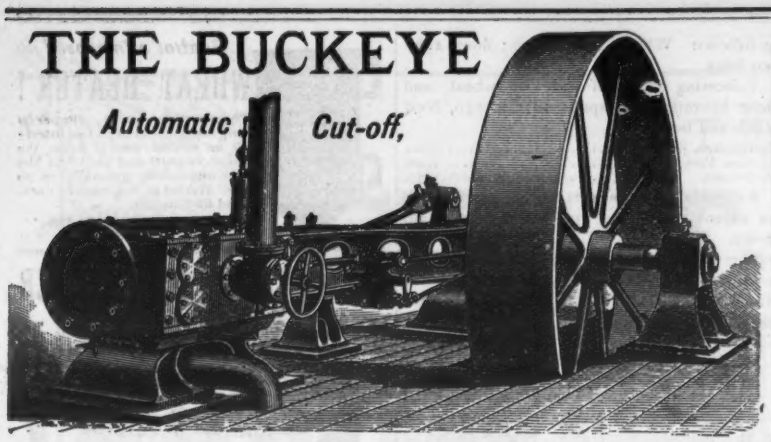

These engines are carefully constructed for heavy and continuous duty at medium or high rotation speed. Highest attainable economy in steam consumption and superior regulation guaranteed. Trade circulars and practical treatise on steam engineering free by mail. Contracts promptly executed. Address

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CELEBRATED GOLD MEDAL

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Bolting Cloths and Grit Gauzes.

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Wire Cloths of Every Description

CLINTON WIRE CLOTH CO.

FOR MILLING PURPOSES.

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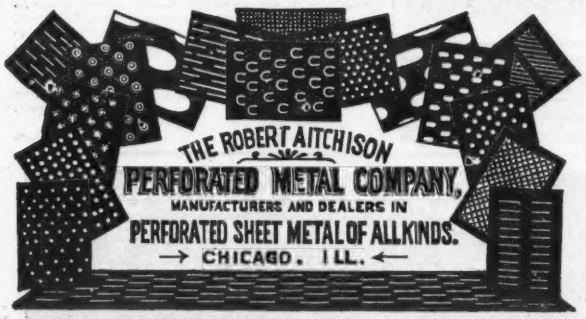

Grain Separators

SMUTTER CASES,

And all purposes to which it is applied in Mills, Elevators and Warehouses.

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Perforated Metal Co.

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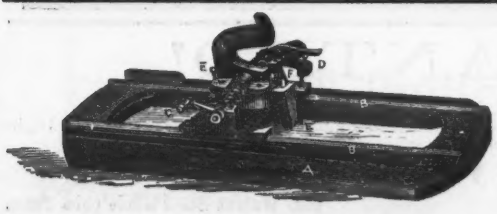

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Diamond Millstone Dresser

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The Best and Cheapest Dresser on Earth. Will Crack, Face and Furrow. Address

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OTTAWA, ILL.

ROLLER **CROWN** MILLS.

MANUFACTURERS OF

HIGHEST GRADES OF FLOUR!

FROM

Hard Spring Wheat.

CAPACITY 3,000 BARRELS PER DAY.

THE FOLLOWING ARE SOME OF OUR

BRANDS:

CROWN ROLLER BEST. BIG GUN,
EMPEROR, BAKERS' GEM,
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CHRISTIAN, BROTHER & CO.

MERCHANT MILLERS,

MINNEAPOLIS, - - MINNESOTA, U. S. A.

J. A. CHRISTIAN & CO.

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MANUFACTURERS OF

THE BEST GRADES OF FLOUR

—FROM—

Selected Hard Minnesota, Manitoba and Dakota Wheat.

CAPACITY 1,200 BBLS PER DAY.

THE FOLLOWING FAMOUS BRANDS:

SUPERLATIVE, TRIPLE EX. CHRISTIAN'S EXTRA,

PEARL, IMPERIAL, BAKERS' EXTRA.

MINNEAPOLIS, MINNESOTA, U. S. A.

Export Figures.

The following is an official statement of the value of the exports of breadstuffs from this country for the month of November in 1881, 1882, and 1883:

BREADSTUFFS.

Articles.	1881.	1882.	1883.
Barley	$ 73,385	$ 46,567	$ 36,465
Indian corn	2,912,805	525,234	1,695,169
Corn meal	106,435	71,423	70,032
Oats	12,008	14,460	12,090
Rye	179,128	182,121	395,724
Wheat	11,577,393	9,334,753	7,295,100
Wheat—Flour	3,161,753	5,115,936	5,149,745
Totals	$ 18,025,880	$15,290,494	$14,657,325

The following were the exports of grain from all Russia from Jan. 1 to Nov. 12 for the last two seasons, in tschetwerts of 5.952 bushels each:

	1883.	1882.
Wheat	8,900,000	8,828,177
Rye	3,415,000	2,800,000
Oats	5,215,000	6,215,000
Barley	1,415,000	1,810,514
Maize	498,800	1,533,700

King & Co., of Toledo, figure out the exportable surplus of wheat in this country on Dec. 1, 1883, as follows: Wheat crop of the United States, 1883, 400,000,000 bus. Demand—consumption 57,000,000 bus. at 4½ bus. per capita for five months, 107,000,000 bus.; seed, 42,000,000 acres, at 1.4 bus. per acre, 58,800,000 bus.; exports for five months ending Dec. 1, 1883, 50,000,000 bus.; making the amount disposed of to Dec. 1, 1883, 216,800,000 bus. They estimate the consumption to July 1, 1884, as 149,500,000 bus. The surplus of Dec. 1, 1883, 33,700,000 bus., to which, adding the 50,000,000 bus. surplus of the 1882 crop above ordinary reserves, makes the exportable surplus on December 1, 1883, as 83,700,000 bus. The exports for seven months ending July 1, 1883, were 61,500,000 bus. and for same time last year, 54,500,000 bus. They add: "The present visible supply is larger than the exports of wheat and flour from the Atlantic ports are liable to be during the next four months. The exportable surplus exceeds the exports during the remainder of the two previous seasons. Statistician Walker last July estimated the surplus on July 1, 1883, as upwards of 128,000,000 bus. including 50,000,000 bus. reserve from the crop of 1882. We regard our estimate given above as more conservative. The present rate of exports, if continued, would absorb the present crop and part of the reserves of the last one. The exports from San Francisco and Willamette, Oregon, last month were equal to 4,400,000 bus. of wheat, nearly half of the total from the United States." It is an important fact that wheat is going out of the country, in the shape of flour, about one-third faster than it went out last year and the year before, and the bulls are attaching a good deal of importance to this movement as signifying heavy inroads upon the invisible supply of the grain. In four weeks the clearances of wheat from New York amount to 1,593,502 bushels, and for the same time the shipments of flour amount to 115,378 barrels and 392,288 sacks.

TIMELY COMMENT.

There is a deal of wild talk about the working of female suffrage in Wyoming, just now. The writer spent several years in that territory, enjoying peculiar means of observation of the institution, and knows that for every strong argument in favor of female suffrage, four equally strong can be made against it. The married women vote as their husbands advise them to, and the single ones, when they can be induced to admit that they are old enough to vote, yield to the blandishments of handsome young politicians, who do not hesitate to employ gloves, ribbons, or even silks and satins, to accomplish the capture of votes. Experience alone would prove the utility of giving woman the ballot in Massachusetts, for instance, but in Wyoming it is a hollow mockery. Few of the ladies of the upper strata of society go to the polls under any circumstances, and a common sight on election day is a procession of vehicles filled with drunken prostitutes and male wirepullers, who make the vicinage of the polling places hideous with vile sayings and doings.

* * *

The hens of the United States are getting to the front in glorious style. In 1882 the corn crop of the country was valued at $490,643,400, the wheat crop at $484,675,779 and the egg crop at $475,682,889. Let's all hunt eggs.

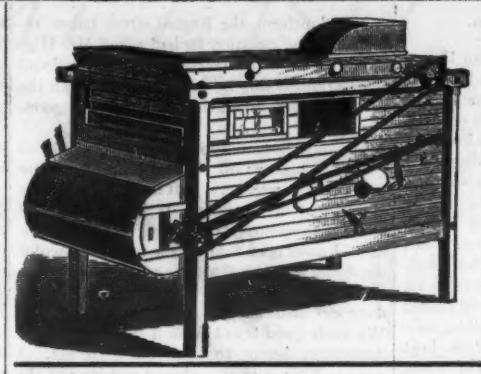
* * *

Dio Lewis is about to engage in a linguistic mill with a Nebraska temperance crank. Lewis is to argue in favor of alcohol. He will "knock out" the other crank in a very few rounds, but this will not affect the cause of temperance.

* * *

The shamefully small wages paid to female clerks, book-keepers, cashiers, etc, in our mercantile and other establishments, is one of the standing disgraces to American civilization. Girls and women are to-day doing work almost or quite as well, as quickly and with less friction, at one-half, and in many cases one-third the wages paid now and heretofore to men or boys. If employers reduced prices to conform to this order of things, it would seem more just, but they do not. Theoretically, females are employed in order to attract more custom, but practically they are employed because they can be forced to accept lower pay, and generally for more hours of work. If wages were equalized, perhaps fewer females would be so employed, but we submit that 50 to 75 per cent is too much of a discount on services of about the same relative value, simply because the gentler sex does not stand up for its rights.

The elevator capacity of Chicago is 23,625,000 bus., and the stock of grain now in store there is about 16,000,000 bus.



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FRENCH
MIDDLINGS PURIFIER,

Has as much capacity and is warranted to do as much and as good work as the No. 0 machine of any other make.

It is fully Licensed under the Smith and all Conflicting Patents.

Send for new catalogue containing full particulars and names of users in almost every State and Territory.

CHAS. G. ROLLINS,
Minneapolis, Minn., U. S. A.

HEAD × LININGS
—AND—
Coiled Barrel Hoops.
OUR CELEBRATED
PATENT ROUND EDGE BENT BARREL HEAD LININGS

are straight grained from end to end. Rounded on their upper edge and crimped or bent ready to nail on barrel. They will not mould as the air circulates freely through the square bundles of 250 in which they are packed. We can furnish them any desired lengths from 12 to 72 inches, and as cheap as any *good* Head Lining can be sold. Can fill orders at sight.

REED & SILL COOPERAGE CO.,
DETROIT, MICH.

The Victor Turbine

Possesses more than double the capacity of other Water Wheels of same diameter, and has produced the best results on record, as shown by the following tests at Holyoke testing flume:

Size Wheel.	Head in feet.	Horse Power	Per cent Useful Effect.
25 inch.	17.79	67.72	.8530
	17.96	68.62	.8584
30 "	11.65	52.54	.8676
	11.66	51.96	.8564
15 "	18.34	29.36	.8705
	18.10	29.22	.8808
15 "	18.06	30.17	.8932
	18.08	30.12	.8849
20 "	18.22	48.75	.8532
	11.23	48.75	.8528
	18.21	49.00	.8522
17½"	17.96	36.35	.8950
	18.02	35.51	.8961

Proportionately high results at part gate. These wheels are of superior workmanship and finish, and of the very best material, and have a perfect working gate. We refer to parties now using the Victor Wheel.

We also continue to manufacture and sell, at low prices, the ECLIPSE DOUBLE TURBINE, widely known as a thoroughly reliable wheel.

State your requirements and send for catalogue to the

STILWELL & BIERCE MFG. CO.,
Dayton, Ohio.

THE CASE MANUFACTURING CO.

BISMARCK THE ROLL.

IF YOU WANT A

SINGLE ROLL OR PURIFIER, CENTRIFUGAL REEL

—OR A—

Full Roller Mill

OF ANY CAPACITY,

Write us. We make more Machines under one roof that go into Roller Milling than any other company.

BISMARCK THE PRINCE.

Millers visiting Chicago are invited to call on WM. E. CATLIN & CO., 57 South Canal Street, our Agents there.

CASE MANUFACTURING CO., Columbus, Ohio.

An Interesting Discussion.

The British Society of Engineers on Dec. 3 listened to the reading of a paper by J. H. Carter, on "Roller Milling Machinery." A number of leading millers and bakers of London and other places were present and participated in the long and interesting discussion which followed the reading of the paper. Mr. Carter opened with statistics of the milling industry in Great Britain, argued the importance of excelling in the manufacture of flour, the merits of pure flour, said the miller's difficulty was the formation of the wheat berry, enlarged upon buhr milling and its defects, and the roller system, and closed by describing roller milling machinery. He quoted Prof. Jago to the effect that the germ and bran of wheat should be removed from the flour. Pronouncing decortication a failure, he argued that stone milling was practically obsolete, although it was for a long time believed in America that careful dressing of the stones would render unnecessary the use of rollers, but that this idea had been proven fallacious. He said that the French millers were hardest to convince, but even they had begun to investigate the roller system. He stated the advantages of rollers over buhrs as follows:

"The sharp flutes of the 'break' rollers detach the kernel from the bran with less friction than the flat rougher surfaces of the stone, e. g., the speed at which the flutes of the fast roll travels is from 450 to 550 feet per minute. The flutes of the slow run at 180 to 200 feet per minute *in the same direction*, thus giving a differential speed of only two to one. The point of contact or grinding surface is clearly very small on a roll of only 9 inches in diameter. The approved speed for millstones, we may assume, has been ascertained after its many centuries of use, and may be stated at 1,500 feet per minute at its periphery, and the nether stone being motionless, much more friction results than in the case of the roller mill, with the differential speed of only two to one between the operating surfaces. The latter, in the case of stones, has been previously put at from 3 to 4 feet, and when used for gradual reduction, as many breaks are required as with rollers, thus proving the shape of the fluted roll more scientifically correct than the operating portion of the stone. The material, iron, is, in the author's opinion, much less capable of producing bran flour than stone. The latter retains for a long time its comparative roughness, whereas in the case of the most successful decorticating machine that has been invented, the author was told by one of the users, that in order to produce the best results, the drive of the machine should be reversed every hour to bring re-sharpened edges into action, as the silica in the bran of the wheat polished the steel so quickly and lessened their capacity as a bran scourer. Then again, when the kernel in the shape of purified semolina and middlings has to be finally crushed, the smooth roller mill makes flour of a better color than stones, owing to the fact of its applying less friction to any of the branny particles that it has been found impossible to separate.

"A point which proves conclusively that the rolls apply less friction than the stones is the remarkable one, that though considerably more machines are used, far less power is consumed. When a mill is being converted into a roller system, advantage is generally taken to alter the engines or wheat-cleaning machines, and so comparative tests are difficult to procure; but in the mill of Mr. Moss, of Salford, which the author fitted up, no change whatever was made in the boiler, engine, or wheat-cleaning machinery, and the result was, that for every 550 sacks of flour made by the millstones, nearly 900 could be made by the roller-plant, the engine being worked up to its full power, and being also proved by indications taken by the Steam Users' Association, to have been indicating about the same power."

Mr. Carter then described the workings of his own machines, giving illustrations, etc. At the conclusion of the paper, J. Stannard of Colchester stated that as early as 1871 he had introduced rollers in his mill, but they were not so well made or operated then and he had been forced to abandon their use, although he believed the roll was destined to soon entirely supersede the buhrs, and would soon resume their use in his mill,

Mr. Bonthron, the Regent street baker, referred to the question he had asked Mr. Higginbottom, at the meeting of the national association, saying he was dissatisfied with the answer he got about the value of the germ. He said:

"I would like to know chemically what this germ is composed of. My own opinion, from practical knowledge, is that it is a very valuable constituent in the flour. It has a wonderful effect in sweetening and making the bread mellow. I have been told that it tends to discolor the flour, and also that being oily it turns rancid. I am old enough to remember the first flour we used to get from America (Ohio). We made good bread from it then, before the Americans began to take the germ out. I went to Vienna to study bread making and the nature of flour, and spent some considerable time in the Imperial flour mill there. At that time they did not even know practically of the existence of the germ; it was ground up in the flour. I get flour from Vienna now, and in my opinion it is not equal to that which was imported in 1862. Speaking again as a baker, I go into the country in order that I may get English wheat ground by English millers who know nothing about the germ, in order that I may get a richer flavor and mellower bread. I know it pleases the journeyman to get flour without the germ, but chemists know very well that close upon 3 per cent makes a very great difference in the making of flour. I am strongly impressed with the impropriety of taking out the germ merely on the ground of a slight discoloration."

In the subsequent discussion, Mr. North referred to statements in the *American Miller* for November, declaring, in effect, that stones made better flour than rolls. He said that if this was true, it would be very unwise for millers to put up roller mills at double cost for equal capacity, in place of stone mills. He closed as follows: "I hope the millers will look on the question at present as one of mere experiment. To millers having plenty of money to squander, it is better for the good of all that they should distribute a goodly share of it among the manufacturers of milling machinery, of whom I am one."

Mr. Smith, of Nottingham, corroborated Mr. Carter's statement about relative power required for stones and rolls, which had been questioned, and cast serious reflections on the *American Miller's* statements. He regretted that he was a stone miller, and mentioning the immense increase in imports of roller flour, said that English millers must change their processes or close their mills.

Mr. Muir said: "I find that the bakers of Glasgow require not only a very strong flour, but a flour of high color, that is, a very white flour that will make white bread. When we use our own wheats we find it utterly impracticable to make such flour unless we add a large admixture of foreign wheats, the supply of which gradually increases as our own wheats deteriorate in quality by the simple reason known to most practical men—that the land of this country, as of any other country, gradually loses its qualities for wheat producing unless you add a very large quantity of manure. You may get a larger quantity of wheat, but it is of very inferior quality, and the miller is obliged to get wheat from countries where it is grown on virgin soil, and that wheat must be treated in the best possible way. My own experience of roller milling dates from 1873–4. I then started roller milling and gradual reduction in Glasgow for the production of nearly 4,000 sacks per week, and I found it positively necessary to use rollers for the purpose of higher manipulation, and purifiers for the purpose of bringing out the color of the flour. As to the flavor, that remains in the wheat as it was originally, and is not acted on by one system or the other. The difference between stone milling and roller milling is this—that you can use a much inferior grade of wheat to produce a better sack of flour with the rollers than you can do with the stones."

F. Moss, Jr., of Manchester, said: "By the stone process, with a maximum power of 76 horse power indicated, 563 sacks of flour were made during a week of 144 hours; and with the same expenditure of power, and the same consumption of fuel, by the roller process we have received 950 sacks. The percentage is quite as good as that obtained by stones, and the quality is decidedly superior. Some gentlemen say roller flour is not so nutritious as stone flour. We do not care to consider about that. So long as our customers say, 'We must have white flour,' we are not going to give them the flour that the bread reform league advocates. With regard to the extracts which have been given from an American paper, they would give the idea that millstone milling is to the fore in America. I have had the pleasure, at different times, of going through the most important mills between Buda-Pesth and the Pacific, and I should be within the mark in saying that not 10 per cent of the mills of any importance in the United States are using stones. At Minneapolis the mills all use rollers, and therein lies the cloud for us. Millers are proverbially supposed to be jolly, but in practice it is very often the opposite. Milling has been anything but a jolly business for the last eight or ten years."

Messrs. Voss, Duckham, Schonheyder, Eaton and Nursey took part in the discussion, and when Mr. Carter rose to close it, he was loudly cheered. He made some telling points in favor of the roller system, and the meeting adjourned.

The Canadian Wheat Tariff.

An associated press dispatch of Dec. 24, dated at Ottawa, Ont., says: "A deputation here from an American millers' association wish wheat duties reduced from 15 to 7½ cents a bushel, to equalize it with the flour tax of 50 cents per barrel. The finance minister is considering the matter." This was the way the dispatch was worded in the northwestern papers, but in the Chicago papers it said: "A deputation here from the Millers' Association"—a wide difference. It is certain that neither the American National association, the Minneapolis, nor the Minnesota associations have authorized such an appeal to the Dominion ministry. A month or more ago the Dominion association asked for the same reduction of duty named above, but was informed that nothing could be done until parliament meets. It would be a very cheeky proceeding for an American association to make such a request of a foreign power, and none of them would do it, even were there a desire for it. It is highly probable that the associated press blundered and that the matter referred to was simply a renewal of their request. It is estimated that Canada will want at least 10,000,000 bushels of American wheat before another harvest. One miller is taking from Chicago about 10,000 bushels weekly. The relief asked is therefore an important matter to the millers of the Dominion, as the scarcity of wheat there has advanced prices so much that American millers can pay the flour duty and then undersell them.

SPECIAL NOTICES.

BUHRS FOR SALE.

One run 4-foot selected old stock buhrs, with spindle, irons and pulley, for $75. Address C. V. WHITE, Minneapolis, Minn.

WANTED.

A good miller who understands both buhrs and rolls, or will sell or rent a good three-run mill. Water power on very easy terms. Address Isaac Otis, Garden City, Blue Earth Co., Minn.

GREAT BARGAIN.

Two run custom flouring mill, with good water power, now doing a nice business in a rich section of country, fast settling up; will be sold very cheap to close out an estate. Address H. P. GRAHAM, Eau Claire, Wis.

SITUATION WANTED.

A position wanted as head miller; perfectly at home with the new process or roller system. Satisfaction guaranteed. Address, O. O. O.: care NORTHWESTERN MILLER.

FOR SALE OR EXCHANGE,

An elevator, 40,000 bus. capacity, good run of buhr stones, 40 horse power engine, 4x12 boiler. All timbers mortised and can be removed to any section. Chas. L. Boyd, 154 Lake St., Chicago, Ill.

MILL TO EXCHANGE.

For Minneapolis property. Good roller mill, capacity 125 bbls. Good water power. Doing a good custom business. Mill in good order. Or will exchange ½ interest to a practical miller. For particulars address L. F., this office.

WANTED.

A situation by a first-class miller as head or second miller. Understands thoroughly roller process and separation, and can do millwright work. Can give best of references. Willing to go on trial. Address A. B., care NORTHWESTERN MILLER.

FOR SALE.

A 35-inch Kendelberger water wheel. Also a 45-inch circular saw. Address C. F. DAVIS, St. Cloud, Minn.

FOR SALE.

One single set of Allis smooth rolls, 12x24, as good as new. Three run 4-foot stones, spindles, curbs, etc., complete. SACKETT & FAY, St. Peter, Minn.

WANTED.

Young man two and one-half years as correspondent and amanuensis with one of the largest milling companies in this country, is open for engagement in a like capacity. Can give best references. Fully conversant with the export trade, and general routine office work. Address A. B., this office.

SITUATION WANTED.

Competent machine shop foreman and draughtsman of seven years' experience in railroad and general manufacturing and repair shops, wants situation as superintendent or foreman in good shop. References to former situations and testimonials as to ability, etc., furnished. Address, SUPERINTENDENT, care NORTHWESTERN MILLER.

TYPE FOR SALE.

Owing to a discontinuance of our job department we have for sale about 150 fonts of the latest styles of job type, which have been in use but a short time and are in prime condition, which we will dispose of at low rates for cash. Will be sold in its entirety or in lots to suit purchaser. To those meaning business we will send a proof sheet of type for sale from which selections can be made. For further particulars address W. C. EDGAR, Business Manager NORTHWESTERN MILLER.

BOOKS WANTED.

If you have any scientific, technical, reference or standard books, newspaper or magazine files, etc., suitable for a large general library which you want to dispose of for cash at a low price, send full description and price to the undersigned and you will receive a reply by return of mail. Old and rare, or modern engravings of merit are also wanted on the same terms. Address LIBRARIAN, care NORTHWESTERN MILLER, Minneapolis, Minn.

HINTS ON MILL BUILDING,

By R. James Abernathy. The most modern book on milling. Three hundred octavo pages, fully illustrated, and containing full accounts of modern milling methods, together with many valuable tables and much useful information for mill owners, millers and millwrights. A book everyone interested in milling should have. Price $4. Sent postpaid on receipt of price, with one year's subscription to the NORTHWESTERN MILLER, $4. Address, NORTHWESTERN MILLER, Minneapolis, Minn.

FOR SALE.

On account of ill health, the undersigned desires to dispose of very desirable milling property near Sandusky, O., holding an old established and valuable trade, and completely equipped with the roller system. Capital not so much required as reliable and responsible parties who can secure to the seller 6 per cent per annum on purchase. This is an excellent opportunity, and to parties who mean business the particulars and details will be freely given. Address J. G. BROWN, care NORTHWESTERN MILLER.

FOR SALE.

I offer for sale my new steam flouring mill, in the town of Marion, Grant county, Ind.; stone basement, with a 2½ story frame, stone engine house, three run of buhrs, with purifier and everything in splendid condition for a first-class custom mill, with business established, ample grounds and stabling for the accommodation of teams. Will be sold at a bargain if sold within 60 or 90 days. Other business engagements prevent my giving it the necessary attention. Address D. R. MCKINNEY, Marion, Ind.

PARTNER WANTED.

Or will sell whole or half interest in mill situated at Mayville, D. T., terminus of St. P. M. & M. railroad in the heart of the Goose River country. No other mill within 40 miles. Large custom and exchange business; good demand for all mill can turn out. Capacity of mill 100 barrels per 24 hours. Must have at least $3000 cash. Owner of mill recently died. For further information apply in person or letter to NORTH STAR IRON WORKS, Minneapolis, N. K. HUBBARD, Fargo, D. T., or GOOSE RIVER BANK, Mayville, D. T.

FOR SALE.

A splendid location for flouring mill or other manufacturing business at the west end of crossing of and between N. P., St. P. M. & M., and Moorhead Northern railroad tracks, with side tracks on each side, Moorhead, Minn. Buildings and a 100 H. P. Atlas-Corliss engine, etc., only one year in use, to be sold with real estate. The engine furnished since last January and is furnishing now the power to run the electric light machinery at good remunerative rates. For particulars inquire of RED RIVER MFG. CO., Moorhead, Minn.

FOR SALE.

The Folsom mill, located 1½ miles from depot, on the Watonwan river, with abundant water to run night and day. Mill is frame building, 30x40 feet, three stories, frame as strong and good as new. Grinding floor ceiled up and well finished. Three runs of buhrs and accompanying machinery, all in good condition. Fifteen acres of ground, dwelling house, stables etc., go with the property, which will be sold for $4,000, partly on time, if required, or will trade for other property. Reason for selling, owners can not agree and are not practical millers. Address DORN & SON, Garden City, Blue Earth Co., Minn.

NATIONAL MILLING EXCHANGE.

We are making an exclusive business of the sale and exchange of mill property, and so far as we know are the only firm in the country giving entire time to this matter. Persistent, judicious advertising and vigilance, coupled with experience, give us facilities for finding buyers unequaled by any concern in the country. We offer the largest number of good chances in all the western states and Canadas, so that buyers looking for locations should consult us. Send for latest list of steam and water power mills for sale and exchange all over the west.

J. M. MOORE, & CO.,
213 North Eighth Street, St. Louis.

FOUND AT LAST!

A COMMON SENSE BOLTING SYSTEM.

The Improved Morse Elevator Bolt,

MANUFACTURED BY

THE KNICKERBOCKER COMPANY, : : Jackson, Michigan.

W. D. THOMPSON, President,
C. R. KNICKERBOCKER, Vice President and Gen. Manager,

ERASTUS PECK, Secretary,
R. H. EMERSON, Treasurer.

THE Round or Hexoganal Reel has been in use for three hundred years or more. Millers and inventors during all that time have been conscious of its defects and have tried to overcome them. But how? Only by changing the size, speed and pitch of the reel, and by placing beaters inside of it which serve to force through the cloth the very impurities which should be eliminated from the finished product. In the Morse Elevator Bolt we have a machine which works on strictly common sense principles, and does its work to perfection. We make this assertion because we know it to be true, as demonstrated by five years of constant trial and experiment. We do not offer a new and untried device to the millers of the United States nor ask them to experiment and aid us in perfecting it. We have waited until we knew that we had a perfect machine and are now ready to talk business with business men. A full description of the new machine will be given in these columns as soon as cuts can be finished. Until then we ask you to write to us and learn what it will do and where it may be seen in operation.

SOME POINTS OF ADVANTAGE OVER COMMON AND CENTRIFUGAL REELS:

1. *It requires less space in proportion to capacity, than any other bolting device whatever.*
2. *It produces purer results than can be made by any other Flour Dresser.*
3. *It effects the best separation of fine middlings from flour and fine middlings from coarse, that can be made.*
4. *It produces flour more even in size of grain than any other style of bolting.*
5. *It will, using the same number of cloth as the first bolting, rebolt flour from the common reel and take out much fine middlings.*
6. *It is simple, durable, requires but little power, and compared with its capacity cheaper than the centrifugal reel.*
7. *It is the best separator of flour from dust-room stuff, tailings, soft roll stuff and other difficult and dirty material, ever devised.*
8. *It produces flour of greater evenness of quality than any other machine. The result of evenness is a more equal absorption of moisture, and consequent equal action in the leaven and a lighter and whiter loaf, and one that will not dry out as quickly as one formed of part middlings or uneven flour. Quick drying out is caused by the coarse particles of flour absorbing the moisture later on in the process of bread making.*
9. *It will work on any material about the mill to better advantage and produce from it more flour and of a better quality than any other bolting device whatever.*

Read what one of the best-known milling firms in the United States says of the Improved Morse Elevator Bolt, after three years' use:

DIXON, ILLINOIS, Sept. 10, 1883.

C. R. KNICKERBOCKER, ESQ., Jackson, Michigan;

Dear Sir:—We learned a few days since that you had bought out the Morse Elevator Bolt Co., and had secured control of the Bolt and would continue the manufacture of them on a large scale at Jackson. We congratulate you upon the ownership of so valuable a machine. We have used three of them nearly three years and consider them the most *perfect bolting apparatus extant*, and we think it wont be long before they will to a great extent supersede the old bolting reels, as well as the more modern centrifugals. If we were building a mill now, we should use them largely in place of the old bolting chest and wholly in place of centrifugals. You can set them in any place you can reach with a belt and we don't know of any stock they cannot handle to perfection. We have set out all of our centrifugals but one and put these bolts in their place and when you get to manufacturing we will order one to take its place as well as some to take the place of an old style bolting chest (4 reel). Our experience is that you can handle with the Elevator Bolt material that it is impossible to handle on a centrifugal with any satisfaction; it has more capacity and takes less power than any centrifugal we have had any experience with.

You have made no mistake in taking hold of this Bolt and the millers will make none in adopting it. It has merits which will be appreciated. We write you thus frankly because we believe most thoroughly in the machine, and thinking it would do you good to know our opinion of it. Wishing you success, we are

Very truly yours,

BECKER & UNDERWOOD.

FOR FURTHER PARTICULARS ADDRESS

THE KNICKERBOCKER COMPANY,

JACKSON, : MICHIGAN.

MFG. AND TRADE.

Items appearing in this column are furnished as news by the several manufacturers and millfurnishers interested.

The JOHN T. NOYE MFG. CO., of Buffalo, N. Y., refuse to furnish reports of the sales that they make, for publication in these columns. They have taken this step in deference to the wishes of a great many of their patrons, believing that the practice, as it has heretofore existed, does not convey the impression that it should.

L. D. Rohrer, of Cumberland, Md., has ordered an automatic feed for his Hannah rolls from the Case Mfg. Co.

The Case Mfg. Co. have an order from D. B. Stewart, Athens, O., for 2 pairs of rolls with their automatic feed.

The Woodlawn Flouring Mill Co. have ordered additional chain belting from the Lechner Mfg. Co., Columbus, O.

A double purifier has been ordered by Yeager & Anderson, Portsmouth, O., from the Case Mfg. Co., Columbus, O.

The Bradford Mill Co. put 12 pairs of Allis Gray belt roller mills into the mill of C. B. Cook & Co., at Cynthiana, Ky.

S. Bigler, of Painesville, O., has ordered 10 pairs of Allis-Gray belt roller mills through Aug. Heine, Silver Creek, N. Y.

G. A. Granger, New Lexington, O., has placed his order with the Lechner Mfg. Co., Columbus, O., for a chain elevator.

The Lima Mill Furnishing Co., of Lima, O., have shipped to Park & Beson, of Sidney, Ill., 1 of their 4-reel Lima bolting chests.

The Case Mfg. Co. have an order from R. C. Poage & Son, Ashland, Ky., for 2 additional automatic feed boxes for their Smith purifiers.

The Lima (O.) Mill Furnishing Co. have shipped to Wm. Shaw, Paris, N. Y., 1 three and 1 six-reel Lima bolting chests, and 1 ten-reel scalping chest.

The Case Mfg. Co. have an order from A. F. Ordway & Son, Beaver Dam, Wis., for a Bismarck mill, to be placed in the mill of J. L. Brown & Co., Fox Lake, Wis.

The Bass Foundry and Machine Works, of Ft. Wayne, Ind., recently ordered 8 pairs of Gray belt rolls of E. P. Allis & Co. for the mill of Bowers & Weirick, at Waterloo, Ind.

The Lechner Mfg. Co., Columbus, O., manufacturers of elevators, conveyors, and roller chain belting, have furnished the Cairo box and basket factory, at Cairo, Ill., and Dupee & Bowman, Forest, O., with roller detachable chain.

The Case Mfg. Co., Columbus, O., have been awarded the contract of the Forest Mills Flour Co., Carthage, Mo., for a complete outfit for a gradual reduction mill on the Case system. Ten pairs of rolls, in Bismarck frames, will be used in this mill, in connection with the breaks, purifiers, centrifugals, etc., of the Case Mfg. Co.

The E. V. White Milling Co., of Leavenworth, Kas., are putting up a complete 250 bbl. roller mill, and have contracted with Edw. P. Allis & Co., of Milwaukee, for the complete mill. The mill, when finished, will contain 22 pairs of Gray belt rolls, and will be a most complete mill. It will be run by a 16 x42 Reynolds-Corliss engine, also furnished by Allis & Co.

E. H. Huntington & Co.'s White Star mill at Cincinnati, O., long having the reputation of being one of the most successful stone mills in the country, was compelled some time since to give way to the roller system. After thoroughly looking the situation over, the proprietors contracted with Stout, Mills & Temple, of Dayton, O., for a 300 bbl. mill, on the Livingston system of rolls. The outfit consists of 18 pairs of Livingston rolls in belted frames, with patent aspirators on the breaks, together with 6 pairs of large sized, old fashioned rolls, formerly used with stone, and of the Ganz pattern, 16 bolting reels, 8 scalping reels, 2 bran dusters, 2 centrifugals, 3 flour packers, 6 Smith purifiers, and a complete line of cleaning machinery. The building and contents were placed in the hands of Stout, Mills & Temple's millwrights, under B. F. Peffer, and the mill is now running with the most satisfactory results.

FOREIGN.

The council of the British and Irish National Association is considering the employment of a chemist at a salary of $1,500 per annum, to make regular and careful analyses of flour, etc.

*

The English brewing trade is in a bad state, or else milling is considered to offer better chances of profit, for a Wiltshire brewer has lately given an order for a complete roller mill.

*

W. R. Dell & Son, of London, sold 29 Smith purifiers during November.

*

Bran is just now fetching a high price in some parts of the United Kingdom, which is at least one favorable circumstance for millers; for instance, in some parts of Yorkshire good bran is worth £8 per ton.

*

The French commission closed its work on the 24th ult. by witnessing the experiments at the mill of Marriotte Bros., at Vereux. The baking tests will at once take place, under the surveillance of Alme Gerard, Lucas, and of three members nominated by the syndicate of Paris bakers.

*

A meeting of the London Flour Millers' Association was held recently to consider the corn dues, imposed by the corporation, on "grain imported for sale." These dues amount to 3s. 6d. per cwt., and London millers hold that where they import direct, the grain is not for sale, but for manufacture into flour, and therefore should be exempt from these dues. Even 3s. 6d. per cwt. represents a substantial item in the year's expenses, where a miller makes 2,000 or 3,000 sacks a week, and considering the many taxes on his pocket, he may be excused from endeavoring to avoid this one. The only question appears to be whether grain imported and sold as flour is not "grain imported for sale," according to the municipal law. The corporation devotes the money thus obtained to very good purposes—the obtaining of open spaces for the people, etc.

*

The satisfactory results following the public examinations for millers and bakers held in London have not failed to bring clearly into view the advantage of theoretical instruction, and have led in France to agitation for the establishment of millers' schools. M. Tourlonnais has published a pamphlet in which he earnestly advocates the founding of a school for millers in Lyons. "At the present time," he says, "when millers have wheat from all countries to work upon, the knowledge which may be transmitted from father to son is no longer sufficient. It is the soil which is responsible for the quality of the mill products, and the miller must be in a condition to deal with his raw products intelligently, a result which can only be obtained through well grounded instruction. The *Journal de la Meunerie* quotes plentifully from this pamphlet, and pleads also for the establishment of a milling school in Paris.—*Mueller Zeitung.*

*

By the instigation of the Vienna bakers' association and in agreement with the industrial school commission of Vienna, a department school will be opened at the city high school in the first district of Vienna, for such students of the baking industry as have had sufficient preparation in the common schools, or from a commercial preparatory course, and can pass examination in mathematics and in the German language. The course of instruction is chiefly directed as follows: (a) and (b) Commercial reckoning and book-keeping, with particular relation to the state of trade as manifested in Vienna. (c) Chemical instruction, with regard to goods used in the bakers' trade, necessary knowledge as to the effect of combinations used, fermentation, etc. (d) Physics, with relation to practice of the trade, and descriptions of those physical appearances and expedients which are of importance in the baking business. This instruction is gratuitous and is furnished twice per week, on Tuesdays and Thursdays, between four and six o'clock in the afternoon. The course began Nov. 19, 1883.—*Mueller Zeitung.*

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ETC., ETC., ETC.,
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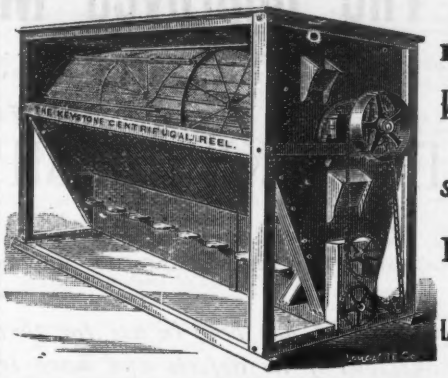

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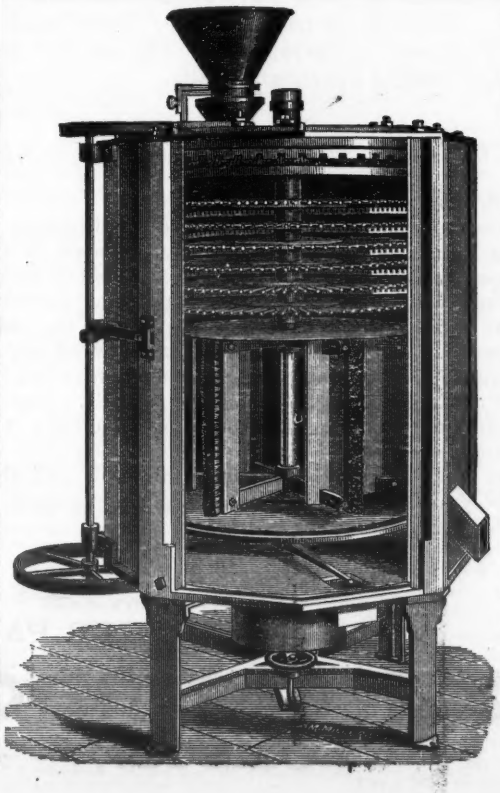

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MILL PICKS

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Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canada, and if not superior in every respect to any other pick made in this or any other country, there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is *manufactured expressly for me* at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct importation. References furnished from every state and territory in the United States and Canada. Send for circular and price list.

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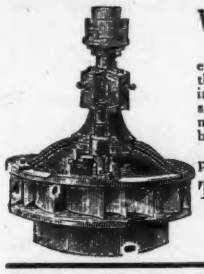
MERCER'S RELIABLE TURBINE WATER WHEEL.



This wheel is acknowledged one of the best on the market. Has valuable improvements in the construction, which are commanding the attention of buyers.

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Stationary, locomotive and marine engines indicated and adjusted for highest economy and work. Will conduct fuel and engine tests; design engines and special machinery. General draughting and engineering.

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St. Louis Operative Millers' Association.

The object of this association is, to unite all practical millers, to give aid to its members, to assist each other to procure employment, to establish a widows' and orphans' fund and for the advancement of the art and science of milling. The officers of the association are:

DAN. J. FOLEY, President.
TOM STOUTENBERG, First Vice-President.
JNO. T. GEBBIE, Second Vice-President.
A. SNUGGS, Secretary and Treasurer, 821 Howard street.
DAN. J. FOLEY, ALEX. FRAZIER, DAVID POLLOCK, Trustees.

Minneapolis Head Millers' Association.

The object of this association is for social and beneficial purposes, and for the advancement of the science of milling. Minnesota head millers not residents of Minneapolis are eligible to honorary membership, but have to be elected. Honorary members are subject to the same dues and assessments as active members. Initiation fee $5.00; dues per quarter, 50c. Address the secretary for copy of constitution and by-laws, or further information. The following are the officers:

President—Matthew Walsh, Cataract Mill.
Vice President—Jas. Mc.Daniels, Washburn A Mill.
Secretary—Fred J. Clark, NORTHWESTERN MILLER.
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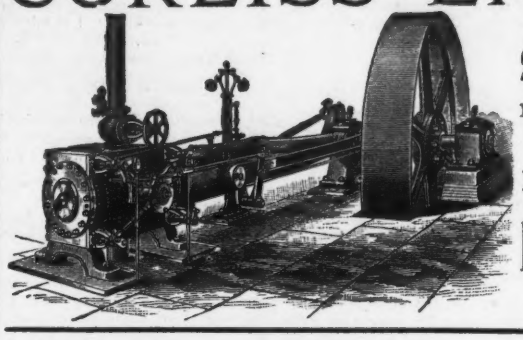

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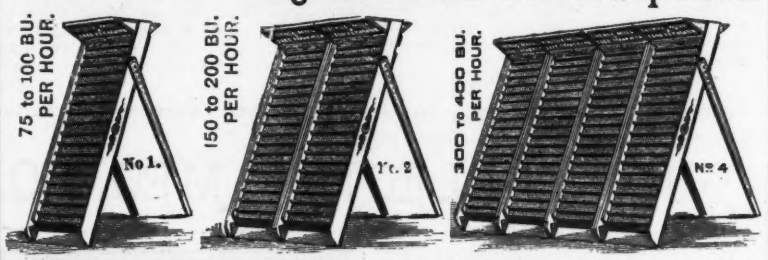

This separator is now coming into general use with millers as a **Grader**, and is giving universal satisfaction—its cheapness, perfect working, and capacity being unequaled by any other separator in the market By running this separator ahead of your Kurth machine, you can reduce the volume of wheat 75 per cent (or about that) for the Kurth. This separator gives you 75 per cent of the largest wheat, free from cockle and ready for the rolls, and 25 per cent of the volume of wheat and cockle for the Kurth. This will increase your Kurth capacity about three times, and also give you two sizes of wheat for first break. You can do this all at one run and without extra power.

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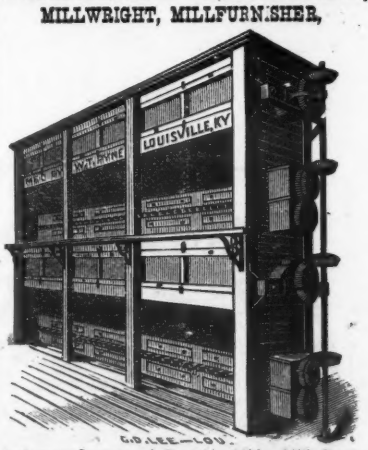

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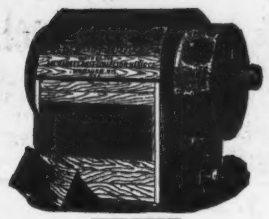

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Patent Improved Dust Collector.

READ THE TESTIMONIALS:

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Milwaukee Dust Collector Manufacturing Co.:

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W. O. EVERETT,
Head Miller Globe Roller Mills, Peoria, Ill.

ELKHART, IND., Dec. 10, 1883.

Milwaukee Dust Collector Manufacturing Co.:

Gentlemen:—The four Dust Collectors bought of you June, 1883, are giving us entire satisfaction. Have used them night and day since July 15, 1883. We don't know but what they work just as well as the day they started.

Yours truly, ELKHART MILLING CO.

STEVENS POINT, WIS., Nov. 10, 1883.

Milwaukee Dust Collector Manufacturing Co.:

Gentlemen:—We would cheerfully say, that we have used your machine over a year, and during that time it has, and is giving good satisfaction.

Yours truly, COLEMAN, JACKSON & CO.

PRINZ

Patent Improved Dust Collector.

With Fan Attachment.

PATRICKSBURG, IND., Nov. 12, 1883.

Milwaukee Dust Collector Manufacturing Co.:

Dear Sirs:—In answer to yours of 9th, the Dust Collector I bought of you works fine. Wouldn't do without it for twice the amount I paid for it. I think it is the best Dust Collector manufactured anywhere, and will recommend it to any one wanting information.

Yours respectfully, STEPHEN MAEGERLEIN.

MANCHESTER, IOWA, Nov. 20, 1883.

Milwakee Dust Collector Manufacturing Co.:

Gentlemen:—Your late favor is at hand and duly noted, and in reply would say, that no Dust Collector in the land can compare at all with yours; it is equal in every respect to the demand, and is bound to work satisfactorily wherever set in motion. It is just the machine for the work required of it and is sure to be a success.

Yours truly, E. HOAG & SON.

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Milwaukee Dust Collector Manufacturing Co.:

Gentlemen:—Eight of the nine Dust Collectors purchased of you are in place and doing the work assigned them cleanly, comfortably, and satisfactorily. We have torn out dust-room and two large ventilators, and not only have increased room and lessened fire risk, but save the material that for years has been carried out of mill through ventilators and spouts.

Yours truly, J. D. BOWERSOCK,
Douglas County Mill.

BALTIMORE, MD., Dec. 12, 1882.

Milwaukee Dust Collector Manufacturing Co.:

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WM. H. WAKEFORD.

Be sure to get the PRINZ DUST COLLECTOR; the only successful Machine. Beware of infringements! The "Back Draft Cleaning Mechanism" the only correct principle. For further particulars, address

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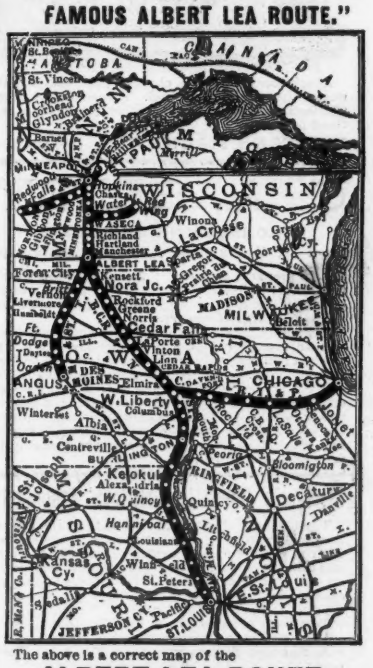
FAMOUS ALBERT LEA ROUTE."



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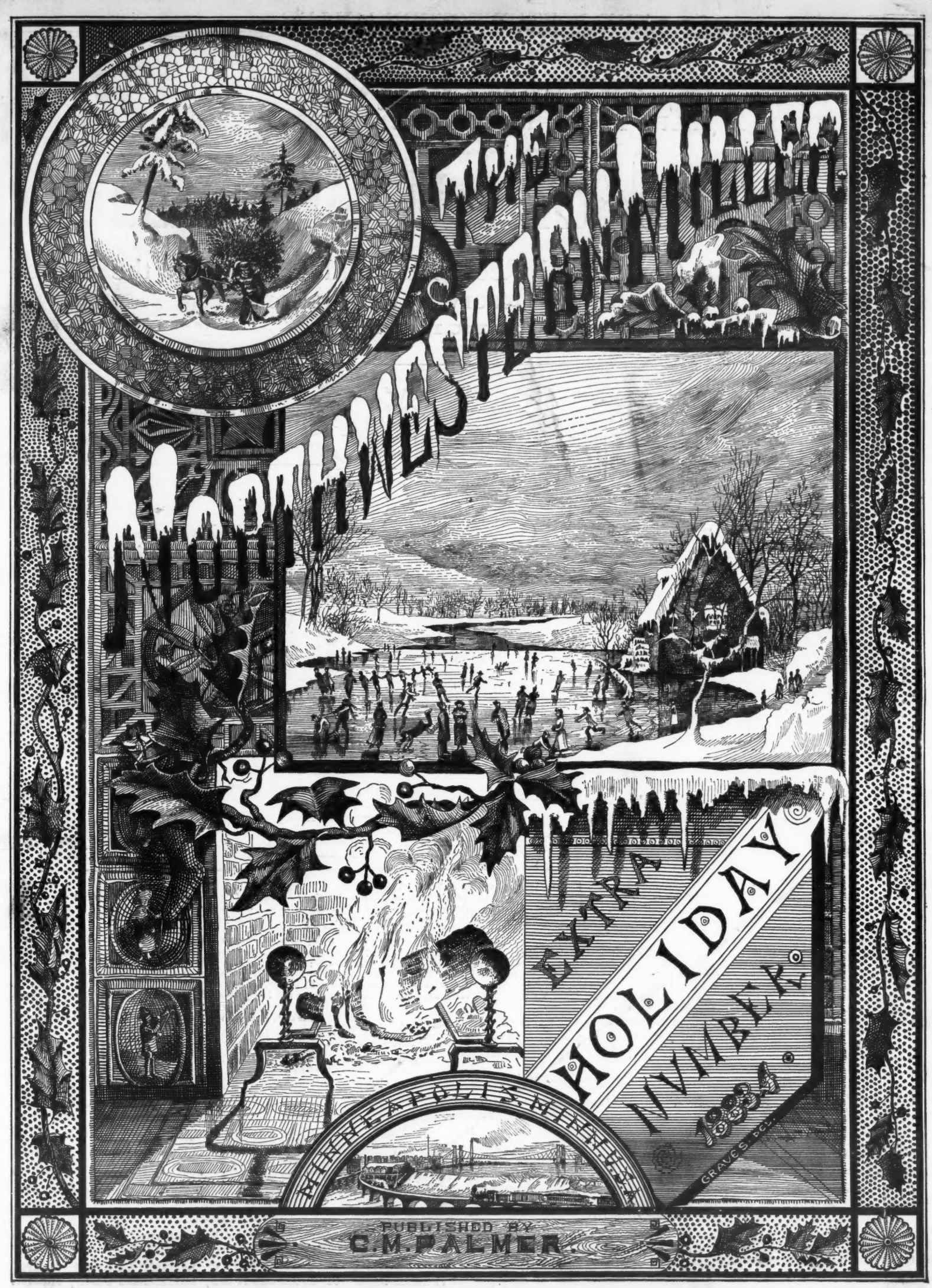

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MAY IT BE A HAPPY CHRISTMAS TIME TO THINE, AND THEE.

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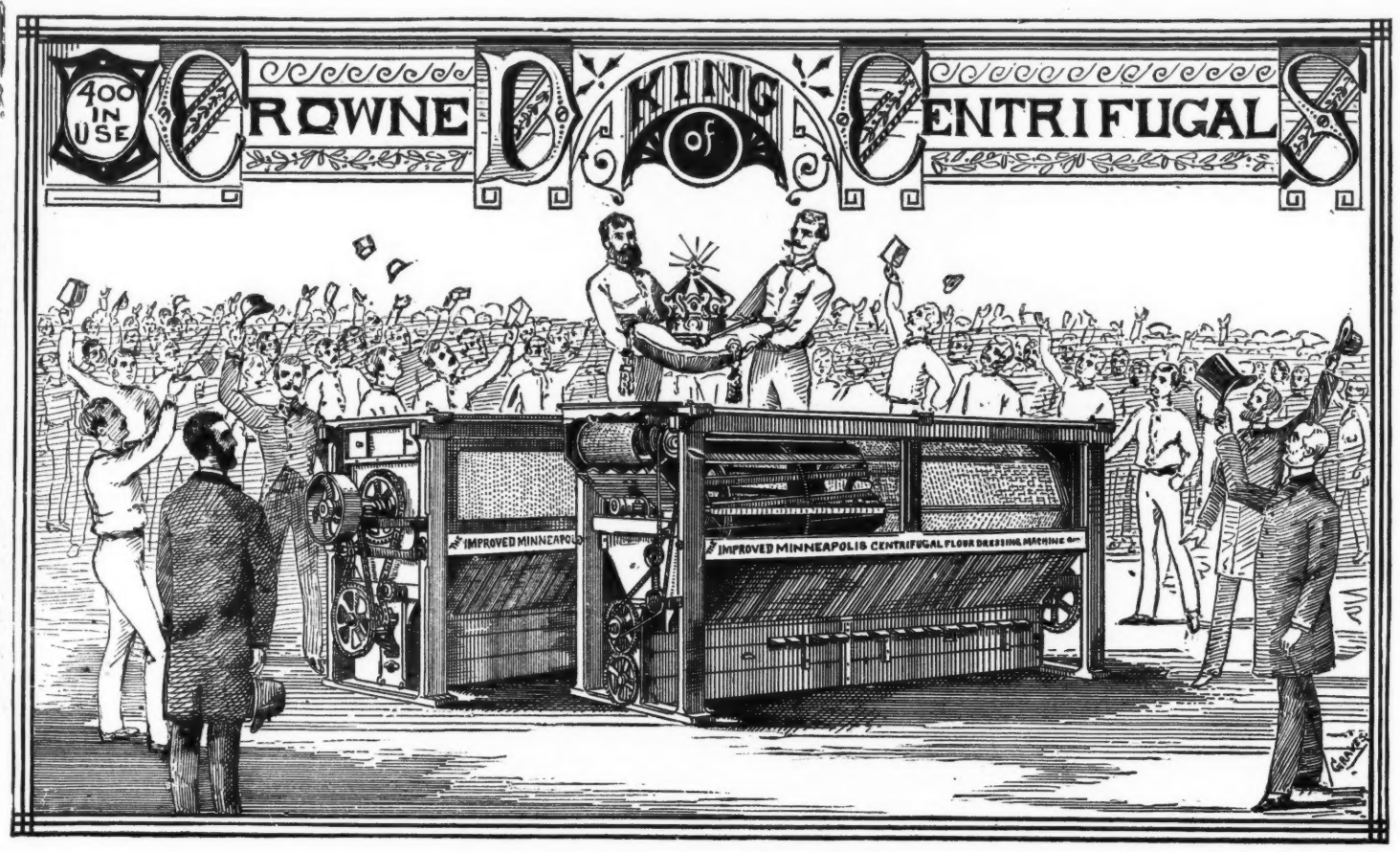
Greatest of all Successes!

Our Minneapolis Centrifugal Reel is Second to None in the United States in Deserved Reputation.

THE CORONATION.

THE GAUNTLET THROWN.—We enter the field without gloves, and on quality and quantity of work, defy any High Priced Reel in the Market to Compete with Our Machine.



"We are using five different makes of Centrifugal Bolting Reels, and must candidly say, your Minneapolis Centrifugal beats any machine of the kind we ever tried."—Minneapolis Miller.

[Manufactured under Patent No. 288,257.]

Our Centrifugal's Make Up.—Our Centrifugal has the fewest parts of any Reel made, thus insuring less chance of breakdowns at critical times. We use in the larger sizes the best cold rolled shafting, 2⅛ inches in diameter. For spiders we use wrought iron arms, cast solid in hub and rim. We use the best of Norway iron bolts, and socket them in spider iron, also fasten them on beater shaft to prevent unscrewing and dropping off, thus loosening beater from spider and causing "smash and cuss." We use large solid case-bearings. Our tailings-escape, which is patented by ourselves, is a circular piece of sheet-iron fastened at tail of Reel. In it are four openings, 7 inches long by 1¼ wide, covered by sheet-iron hoods, which allow but one of these openings to discharge at a time, thus insuring cleanest possible tailings. A duplicate attached to last spider makes a double tailings-escape.

Its Special Claims.—We claim for our Centrifugal specially fine results on the following work: For Rebolting Straight or Bakers' Flour; for Separating Break Flour and Fine Middlings; for Scalping Breaks from Rolls from Fourth Break up; Clothed with Wire, for Scalping Chop from Stones; for Dusting Fine Middlings, thus enabling Purifiers to do a Larger Percentage of Good Work; for Dressing and Separating Products from Smooth Rolls or Middlings Stone; for Finishing High Grade Flours; for Rebolting Cut-offs or Returns; for Finishing Tailings from Rollers; for Dressing Low Grade Flours; for Dusting and Finishing Bran and Shorts or Shipstuff; in fact, for any work that an ordinary Reel works on, our Centrifugal, properly handled, will Produce Better and Closer Results. We particularly recommend to all Millers our No. 2 and No. 3 sizes, which are easily capable of three or more separations, and for all ordinary use give excellent satisfaction.

Office of BURLINGTON FLOURING MILLS, BURLINGTON, Wis., December 18, 1883.

Messrs. Willford & Northway, Minneapolis, Minn.:

Gentlemen: Enclosed please find draft in full for the No. 2 Minneapolis Centrifugal Bolting Reel. It works well and has improved the flour very much. We are well satisfied it is the *best machine* we ever put in our mill, and we could not do without it now. Yours truly, M. L. AYRES & SON.

Office of TURNER & REYNOLDS, STANTON, Mich., December 6, 1883.

Gentlemen: Your Reel is a good one, and we can see no point of superiority in others over it. They are good machines, and your draft on us for amount the 17th will be promptly paid.

Yours truly, TURNER & REYNOLDS.

Office of A. F. ORDWAY & SON, BEAVER DAM, Wis., December 18, 1883.

Messrs. Willford & Northway:

The Centrifugal Reel we bought of you for King Bros., for F. King's Mill at Watertown, Wis., is doing first-class work, and every one is satisfied. Truly yours, A. F. ORDWAY & SON.

Office of BRIMFIELD ROLLER MILLS, BRIMFIELD, Ill., December 10, 1883.

Messrs. Willford & Northway, Minneapolis, Minn.:

Enclosed please find draft in full for the No. 2 Centrifugal Bolting Reel. I was perfectly satisfied with the machine after running it a few hours, and haven't changed my views since. It is *the best machine* I have in the mill for the money invested, and the reason I did not pay for it long ago was want of funds, but as the old saying goes, "better late than never," and I would rather *owe you all my life than cheat you.*

Respectfully, RICHARD LAUB.

We Offer to the Millers of the Country our famous "GOLD RIBBON" brand of

Millers or millwrights changing mills over to the roller system, write us about our silk, for prices, etc. It will pay.

BODMER BOLTING CLOTH

Millers who know the value of exact count in Bolting Cloth will do well to correspond with us.

MANUFACTURED AND IMPORTED EXPRESSLY FOR OUR TRADE.

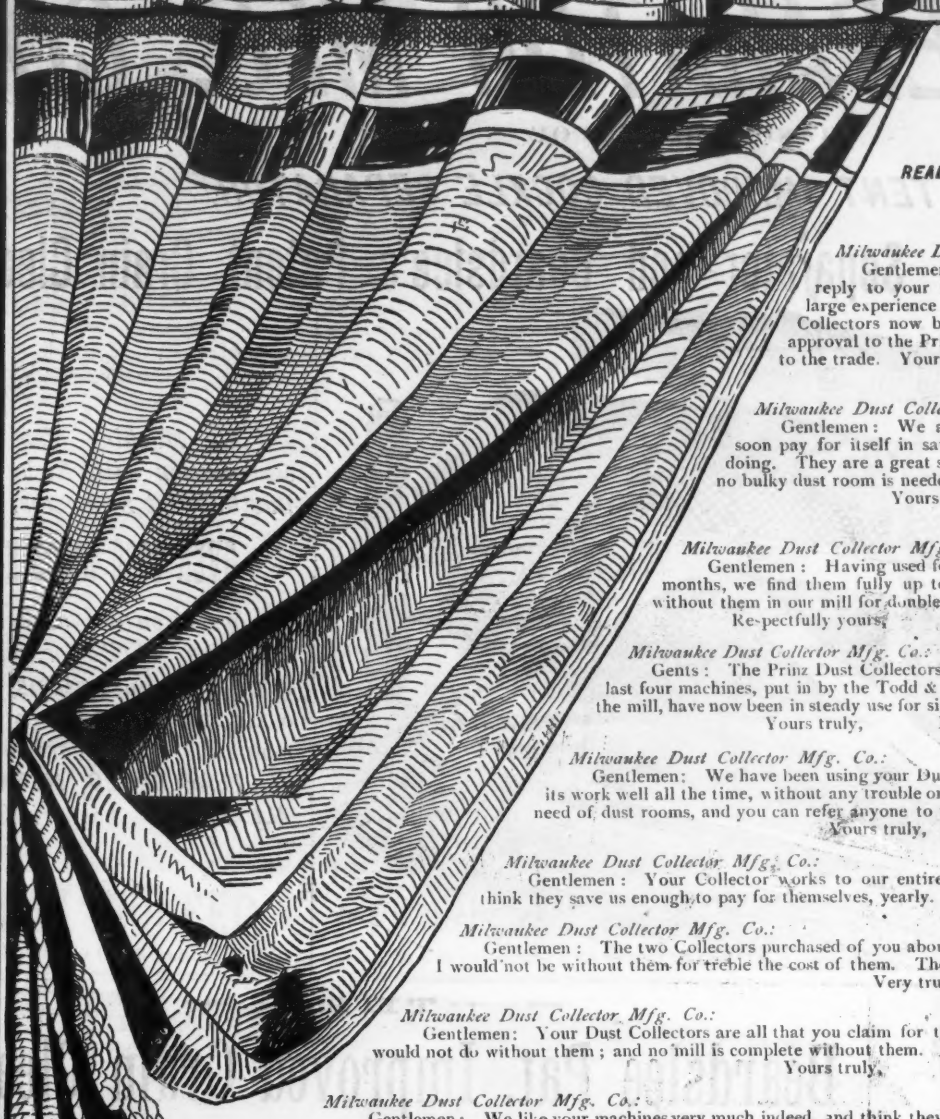
We have made arrangements with Bodmer silk manufacturers to make for us a double extra heavy silk in all numbers from No. 4 to 15, especially for Centrifugal Bolting Reel work. We will please our customers with the best and heaviest cloth in the country if we break the manufacturers.

To be continued in our next.

WILLFORD & NORTHWAY, MINNEAPOLIS, MINN.

The Milwaukee Dust Collector MFG. Co.

exclusive manufacturers of Prinz Patent Dust Collector.



IT IS THE ONLY SUCCESSFUL

DUST × COLLECTOR.

READ TESTIMONIALS AND JUDGE FOR YOURSELF.

✢ ◆ ✢

BUFFALO, N. Y., November 14, 1883.

Milwaukee Dust Collector Mfg. Co.:

Gentlemen: We are in receipt of yours of the 12th, and in reply to your inquiry take pleasure in stating that we have had a large experience in the use of the various Dust Rooms and Dust Collectors now before the public, and that we give our unqualified approval to the Prinz Machine as being in our judgment the best offered to the trade. Yours truly, THE JOHN T. NOYE MFG. CO.

CENTRALIA, Ill., November 5, 1883.

Milwaukee Dust Collector Mfg. Co.:

Gentlemen: We are well pleased with your Dust Collector. It will soon pay for itself in saving offal, and we can tell just what the Purifier is doing. They are a great saving in room, as where they are used exclusively no bulky dust room is needed.

Yours truly, JOHNSON & CUNNINGHAM.

BUFFALO, N. Y., November 20, 1883.

Milwaukee Dust Collector Mfg. Co:

Gentlemen: Having used four of your No. 4 Dust Collectors for the past five months, we find them fully up to all you claim for your machine, and would not be without them in our mill for double the price you ask for them.

Respectfully yours, JOHN MUNRO, Supt. Queen City Milling Co.

Milwaukee Dust Collector Mfg. Co.: ST. LOUIS, Mo., December 1, 1883.

Gents: The Prinz Dust Collectors continue to work to our entire satisfaction. The last four machines, put in by the Todd & Stanley Mill Furnishing Co. when they remodeled the mill, have now been in steady use for six months and work as well as they did the first day.

Yours truly, HEZEL MILLING CO., F. H. KRITE, Sec'y.

Milwaukee Dust Collector Mfg. Co.: SPARTA, Ill., November 8, 1883.

Gentlemen: We have been using your Dust Collector for the last ten months, and it is doing its work well all the time, without any trouble or expense. I am free to say that there is no more need of dust rooms, and you can refer anyone to us in regard to it.

Yours truly, J. C. BOYLE & CO.

Milwaukee Dust Collector Mfg. Co.: EAST SAGINAW, Mich., October 30, 1883.

Gentlemen: Your Collector works to our entire satisfaction. Would not be without them, as we think they save us enough to pay for themselves, yearly. Yours, etc., EMIL MOORES.

Milwaukee Dust Collector Mfg. Co.: GIRARD, Kas., October 30, 1883.

Gentlemen: The two Collectors purchased of you about a year ago are working to my entire satisfaction. I would not be without them for treble the cost of them. They do the work they are intended for to perfection.

Very truly yours, C. HITZ.

Milwaukee Dust Collector Mfg. Co.: GREAT BEND, Kas., October 30, 1883.

Gentlemen: Your Dust Collectors are all that you claim for them. After using them six months, we absolutely would not do without them; and no mill is complete without them. We consider them perfect.

Yours truly, SOOY, BRINKHAM & ROBERTS.

Milwaukee Dust Collector Mfg. Co.: TOLEDO, Ohio, October 29, 1883.

Gentlemen: We like your machines very much indeed, and think they are indispensable to any mill. We are using two machines, but really need one more, to take the place of a Kirk & Fender, put in on trial, which we cannot use.

Yours truly, HASKELL, CORNELL & CO.

COLUMBIA, Ill., November 9, 1883.

Milwaukee Dust Collector Mfg. Co.:

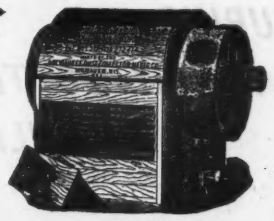
Gentlemen: The five Collectors bought of you last spring are working like a charm; they have been working now five months, and have never given any trouble. Every miller in the country using purifiers ought to have them.

Yours truly, HENRY HUCH.

KENNEDY, N. Y., November 8, 1883.

Milwaukee Dust Collector Mfg. Co.:

Gentlemen: Your Dust Collectors are giving first-class satisfaction, and are just as good as guaranteed. They are doing all you said they would, and we are in every particular pleased with them. Yours truly, PHILLIPS & THOMAS.



PRINZ

Patent Improved Dust Collector,

With Fan Attachment.

PRINZ

Patent Improved Dust Collector.

Write for our New Circular, just out, Containing Hundreds of Testimonials.

FOR FURTHER PARTICULARS, ADDRESS,

MILWAUKEE DUST COLLECTOR MFG. CO.,

MILWAUKEE, WIS.

THE ONLY

RELIABLE COCKLE SEPARATOR!

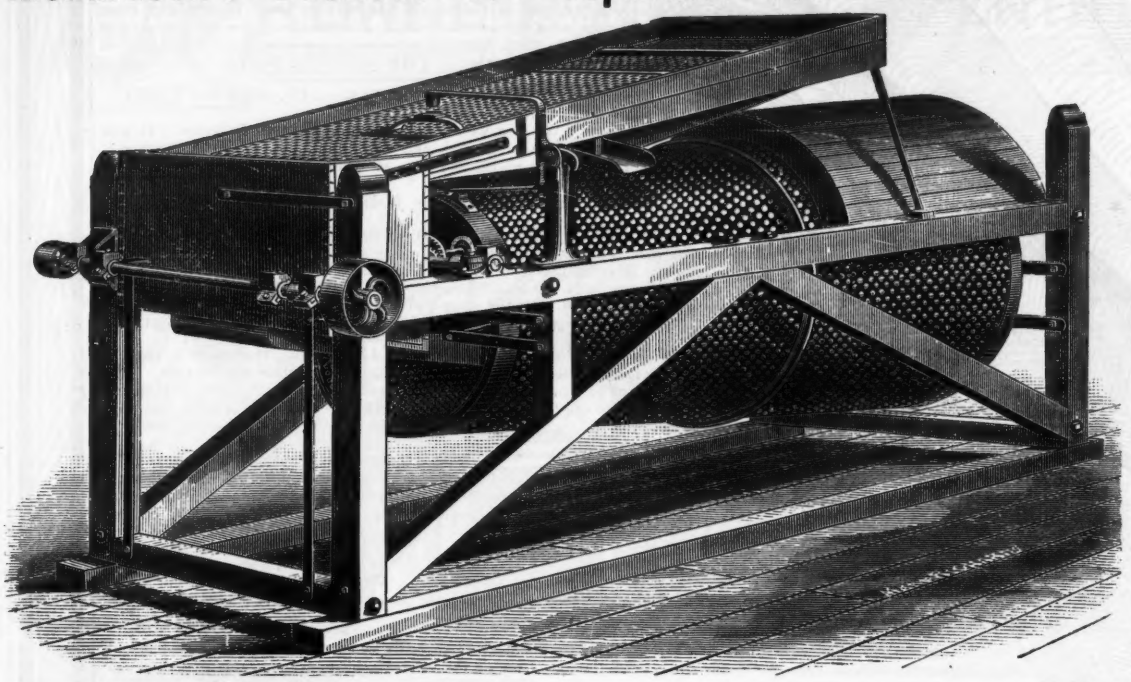
NO WASTE OF WHEAT IS THE IMPORTANT FEATURE OF THE KURTH'S PATENT IMPROVED COCKLE MACHINE.

COCKLE SEPARATOR MFG. CO.,

MANUFACTURERS OF

KURTH'S PATENT IMPROVED COCKLE SEPARATOR,

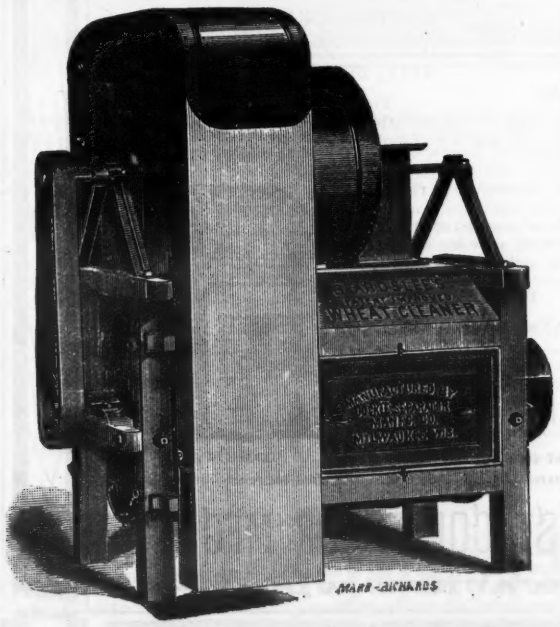
Richardson's Dustless Oat Separator and Beardslee's Patent Grain Cleaner.



Plain Machine also built in combination with Richardson's Dustless Oat Separator.

OVER 2000 MACHINES

in operation in all civilized countries. Write for new catalogue with illustrations, prices, &c., and thousands of testimonials. Also manufacturers of ***PERFORATED METALS OF ALL KINDS.*** *Low prices.*



THE

Beardslee Pat. Improved Grain Cleaner

THOROUGH SCOURING,
NO INJURY TO THE GRAIN,
FULLY GUARANTEED!

BEARDSLEE'S PATENT GRAIN CLEANER is also built with Shoe Attachment. Write for the new catalogue of the improved machine. Different sizes built. Low prices for excellent machines. Address for particulars,

COCKLE SEPARATOR MFG. COMPANY,

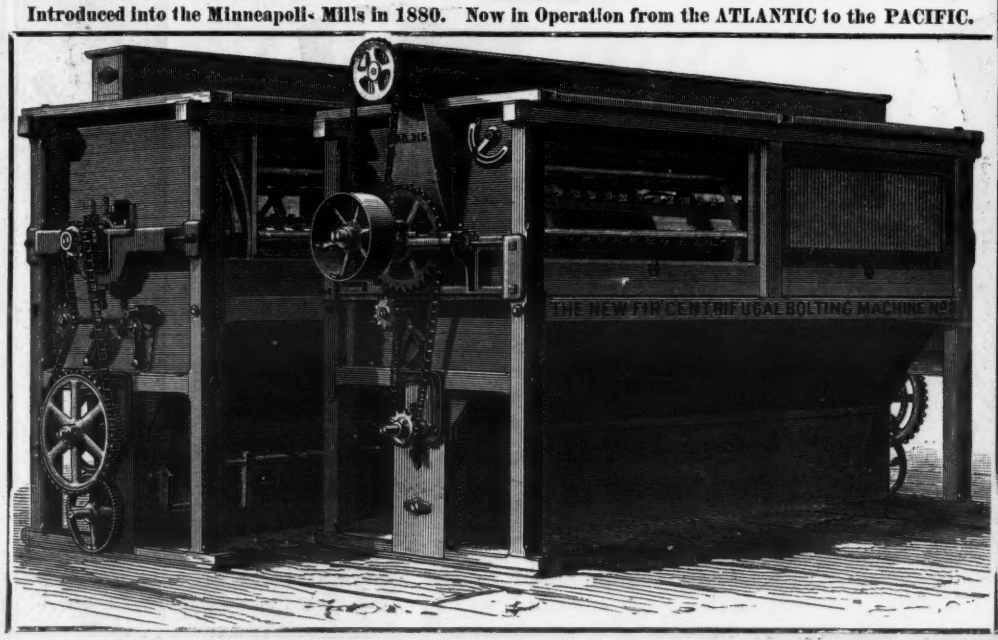
MILWAUKEE, : WISCONSIN.

The NEW FIR CENTRIFUGAL REEL

THE LOUIS B. FIECHTER MANUFACTURING Co. MINNEAPOLIS. MINN

IS THE PIONEER CENTRIFUGAL —IN THE— UNITED STATES.

Introduced into the Minneapolis Mills in 1880. Now in Operation from the ATLANTIC to the PACIFIC.

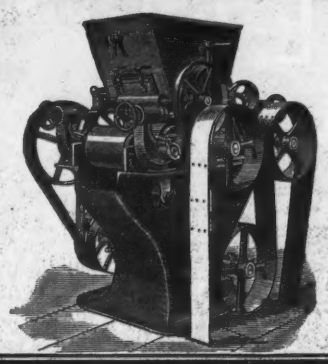


We Build, Remodel and Improve Mills on Fiechter's Roller Mill System, in which Centrifugal Bolting is Adopted. Old Reel Bolting System Changed into Centrifugal Bolting System a Specialty.

SOLE MANUFACTURERS OF ABOVE MACHINES IN U. S. A.,

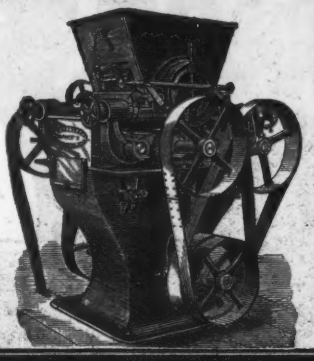
The LOUIS B. FIECHTER MFG. CO., Mill Builders, Minneapolis, Minn.

In Europe, JOHN FIECHTER & SONS, Mill Builders and Engineers, Liverpool, England.



GRAY'S PATENT

Noiseless Belt Roller Mills.



EDW. P. ALLIS & CO.

AND

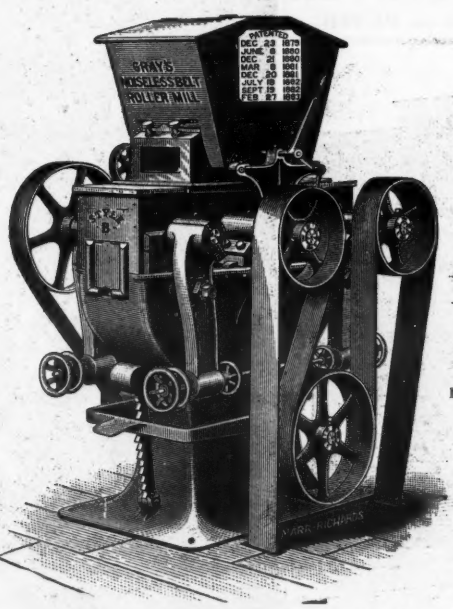
RELIANCE WORKS

SOLE MANUFACTURERS

MILWAUKEE, WIS. U.S.A.

STYLE B MACHINES,

FOR SMALL MILLS.



CIRCULARS

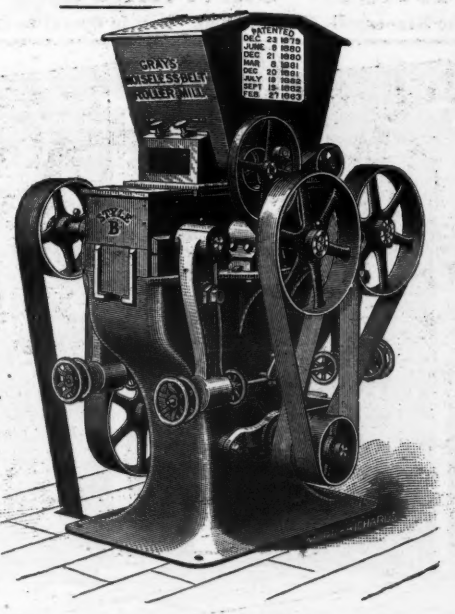
AND

PRICES

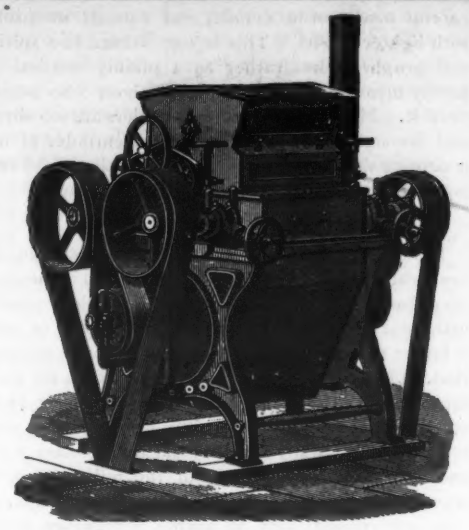
OF

All Our Machines

FURNISHED ON APPLICATION.



THE LATEST



THE BEST

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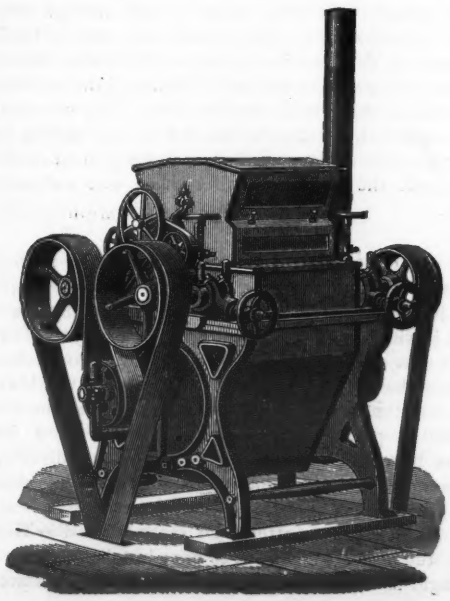
COMPLETE SUCCESS

OF COURSE WE MEAN

THE RICKERSON ROLL.



For Proofs, Address

O. E. BROWN MFG. CO.

GRAND RAPIDS, MICH.

NORTHWESTERN MILLER

A Weekly Journal, devoted to the interest of Millers, Bakers, Coopers, Grain Dealers and members of kindred trades.

PUBLISHED EVERY FRIDAY MORNING,
By C. M. PALMER.
AT
228, Washington Ave. South, MINNEAPOLIS, MINN. U. S. A.
(THE MILLING CENTER OF THE WORLD.)

Subscription $2.00 per year in Advance, in U. S. and Canadas. $3.00 per year in Advance to all countries in International Postal Union.

Circulation the largest. Advertising Rates the lowest of any trade paper of similar standing. Rates quoted on application to W. C. EDGAR, - - - - Business Manager.

EXTRA HOLIDAY NUMBER, 1883-4.

THIS extra holiday number of the NORTHWESTERN MILLER is designed to give its regular readers a practical holiday token showing our appreciation of their continued favor, and to those who, though interested in some of the trades which it strives to represent, are not yet subscribers, a sample of what can be done for them in the way of special trade papers. We make no apology for its short-comings, being confident that all who consider that this is the first attempt of the kind ever made by a milling paper, will take into consideration the difficulties attending its preparation on a scale of magnitude commensurate with the merits of the regular weekly issues of the NORTHWESTERN MILLER. Such as it is, we submit it, with feelings of pardonable pride in the quality of its literary and technical contents, engravings, and typography, and with the promise that the extra holiday number for 1884-5 will surpass it in every respect.

⁂ ⁂ ⁂

WE PRESENT as a stellar attraction—to adopt the language of the theatres—a fine lithographic view of the lower portion of the falls of St. Anthony, on the Mississippi river, at Minneapolis. This was made from a crayon drawing executed by a traveling artist in 1859, and old residents of Minneapolis pronounce it a correct view of the greater part of the city of Minneapolis as it then appeared. It will be our task in our next holiday number to show the falls as they now appear, together with the mills and manufactories which have grown up around them, with some adjacent portions of the city of 100,000 inhabitants which they have helped to create. This view of the greatest concentration of any single industry that the world has ever seen can not fail to be even more interesting than our view of the slight beginnings of these vast enterprises.

⁂ ⁂ ⁂

WOOD engravers and authors are proverbially slow, especially those upon whose work the world sets the highest value. Several good things both in story and in picture were not completed in time for this issue. Such of them as are still seasonable will be issued in our next holiday number, for which we shall begin to make preparations much earlier in the year.

⁂ ⁂ ⁂

THE YEAR just closing has been a reasonably prosperous one for the millers of the United States, the dullness and decline in values since Sept. 1 but serving to balance the activity and higher prices during the first six months. Very steady running of the mills has been the chief characteristic of the year, and if the profit side of the ledger is not so plentifully covered with large numerals as of yore, there are figures there which indicate that the number of those who voluntarily retire Jan. 1 because of light profits, will be very small. The business of milling has settled down toward the level of the future more rapidly within the past year than for any three previous years. By level of the future, we mean that there has been too much spread-eagleism in the conduct of the business since the era of great profits following the development of new process milling in its present perfection. The era of great profits, except in phenomenal years, has gone by, and our millers must more generally adopt the policy of close personal supervision and careful attention to details, and content themselves with lighter profits. This is not written in a spirit of evil prophecy, but rather as a plainly worded and kindly meant note of warning to those who seem to need it. Most of our country's millers are too shrewd and far-sighted to need any other reminder of what is coming than personal experience, with careful reading of the signs of the times, can give them.

⁂ ⁂ ⁂

THE YEAR closes, or at least this is written, at a time when the outlook is gloomiest. Flour is cheap and very slow of sale. The markets of the world are glutted with flour and wheat, and the visible supply of wheat is larger than was ever known before at the same period. This has been the condition of affairs for nearly three months and if there be any silver lining in this cloud of depression it requires a very strong vision to discern it. Many winter wheat millers have a poor and light crop to work on, but the millers of spring wheat, particularly in the northwest, have the largest crop ever raised, with an ample percentage of it of high grade. We do not, particularly at this time, the spirit of which teaches mutual respect and forbearance, allude to the rivalry between these two great divisions of the milling army. Each has its appointed work to do and its special materials to work with. We believe that the markets of the world are wide enough for both to find an abundance of the special customers they seek, without any clashing of interests. Both winter and spring wheat millers are laboring for the improvement of the most useful art known to man, and as such workers of good, any conflict of interests is impossible.

⁂ ⁂ ⁂

IT MAY perhaps be argued that we are becoming entirely too pesstimistic for the columns of a special extra issue in these glad holiday days and, lest the charge appear too well grounded, let us turn our field glass on the edge of the cloud and read as well as we can the purport of its silver lining. Cheap wheat, ample supplies and cheap flour mean priceless benefit to the people of the whole world, except it be that coupled with these is a general reduction of wages. This latter condition is not the case, at present. We believe that all things considered, the wage workers of to-day are better paid and average less hours of work than ever before in the history of the world. This state of affairs should cause rejoicing in the hearts of all who have any interest whatever in the well-being of their fellow men.

⁂ ⁂ ⁂

REGULAR readers of the NORTHWESTERN MILLER know that if it has a hobby it is the advocacy of mill brands. For a long time past, in fact ever since we began to consider the relation of the miller to his customers, we have been preaching weekly sermons on this text. We fear that ours has been the usual homilist's luck. Our congregation has either gone to sleep outright or else closed its ears to the steady droning of the sermon. But we are not discouraged, and can promise our hearers a series of similar inflictions during the coming year, for we are hopeful and believe that within the next few years all reputable millers will come to realize the situation, and that one of them putting out a barrel of first-class flour under a letter or number will be regarded by his fellows as a would be suicide and candidate for the bankruptcy court.

⁂ ⁂ ⁂

WE HAVE recently had the pleasure of looking into the business affairs of a milling firm which, during the past year, has not put out a single barrel of flour (on a production of four to five hundred barrels a day) that was not branded with their own name and trade mark and which did not contain their copyrighted card and circulars. The result as shown by their books is not surpassed by any mill of which we have knowledge. It has paid and paid big—to use a favorite American word. We shall endeavor to tell briefly how it was done.

⁂ ⁂ ⁂

IN THE first place, this mill is run by live men, young, active and enterprising. They do not think that their flour is the best in the world and they do not dough it up with samples from other mills with a determination to make it show up finer than anything else. They know that it is but little if any better than that made by dozens of mills in their own neighborhood and in adjoining states. But they are bound to sell it at the highest price. When they adopted the resolution to do so, the owners of the mill (which is operated under a name favorably known in the flour market for more than half a century) visited the leading jobbers in all the principal towns of New England, which is, of course, the best all around market for high priced flour in the world, and notified them that they proposed thereafter to sell their flour under their own brands exclusively. The reply was invariably "But you can't do it, you know. We get the flour of —— and —— and other leading millers, under a letter and brand it to suit ourselves. You are too small fry to dictate to us that way. We don't want your flour. Good day." Within a week every bill board, blank wall and fence in that town blossomed out with the words "Brown's Best," (which will stand for the name as well as anything else) and every housewife in the city and vicinity received an elegant circular, presenting outwardly the appearance of a wedding invitation, setting forth briefly but forcibly the good results sure to follow the use of "Brown's Best." The newspapers were full of "Brown's Best" and every other means of advertising was resorted to. Every grocer, no matter how small, who had a call for the flour, was supplied with it—in five barrel lots if he could buy no more, and soon consumers called for but little else. This work was done systematically in more than twenty New England towns and without exception the jobbers who refused to handle the flour have begged for it and are now selling it at prices on top of the market. This firm has spent nearly ten thousand dollars in advertising in the past year and they are amply satisfied with the result and propose to continue the same policy as long as it pays. What they have spent they have received again four times over in the enhanced prices of their flour and they still have the benefit of it in the additional reputation which their flour has attained—which is their own exclusive property and not divided among a score of flour dealers, any one of whom would give up his share of it in a minute, if he could buy an equally good flour to put under the same brand at five cents less per barrel.

⁂ ⁂ ⁂

The NORTHWESTERN MILLER does not wish to be misunderstood in this matter. It is friendly to the flour dealer, who is a useful member of the trade, but it is much more friendly to the miller, who, if he will, can get along without him and make more money. As things are at present the broker gets his twenty cents a barrel whether the miller is making or losing money. What we advocate is that millers who are sufficiently able business men to do so should sell their flour as near to the consumer as possible, thus avoiding middle profits, which benefit neither producer or consumer. For those who are, or think themselves, deficient in capital or organizing ability to sell their goods as we have indicated, the middleman stands ready to do the business. The very fact that some of the best mills can and do successfully do business without them, will serve to keep them on the alert to do the best they can for those who patronize them.

⁂ ⁂ ⁂

IN REVIEWING the advance of the art of milling during 1883, which is done with more or less thoroughness in various parts of this issue, nothing has been said, it will be noticed, about the publication of any new books on the subject. This is not an omission, for none have been issued. It is the case, we think, with no other great industry that it is almost entirely without a permanent literature. There are a few books bearing on the subject more or less directly, but none of those printed in English have any value as authorities or are ever quoted or consulted as such —or at all, for that matter. Of those printed in German, the best are so old as to have but little value in the light of modern experience, and when translated

jor the use of American readers are of even less use than to those who read them in their native language, for American processes, and the conditions surrounding and governing them are so different that they can not be accepted as guides even when their correctness is not disputed by the nation for whom they were written. The master work on modern milling has yet to be written and its preparation offers rich remuneration to a competent authority if there be any such.

⁂ ⁂ ⁂

IF BOOKS on milling are scarce, the same can not be said of newepapers and magazines, of which there are nearly a score printed in English—thirteen or fourteen of them being American. Perhaps the reason for the surprising lack of books on milling is the great excellence of these periodicals which, by their enterprise in collecting and disseminating information of new machines and processes, render them unnecessary or at least but a little needed.

⁂ ⁂ ⁂

THE literature of milling has treated more of generalities in times past than it will in the near future. There was a time when it was a question of purifiers or no purifiers,—lately millstones or rolls. After this question was settled, it narrowed down somewhat farther so as to determine whether or not rolls should be used for middlings as well as wheat. Now that that question is settled in the minds of a large number of millers, it comes to the consideration of what kind of rolls for that purpose, and invites an exhibit of preference as to smooth chilled iron, porcelain or scratch rolls. This process of narrowing the question goes on and reaches a finer point as we learn more about t. First it is principles, later it is the larger details and finally the narrow points, and it is with these that most of us have to deal now. The time was that when he who had merely the right general principle was in advance of his neighbors and that without his knowing anything in particular about the details, and his profits in business were large as the difference in knowledge was great, it being a question of principles and not of details. It has now resolved itself into a finer distinction. One miller has less advantage over another than formerly. Instead of looking for principles for difference in profits, he has to look to details, consequently the whole question of details as well as profits has a finer edge on it than formerly.

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IN THE milling machinery trade 1883 has been a prosperous year, and the sales probably aggregate more than in any which has preceded it. The indications are that the coming year will be marked by a steady demand, which, if it does not surpass that of 1883, will be quite as healthy in tone, with as few losses from bad sales. The fact must be admitted that the building of large mills will not be so general throughout the country as during the past year, but the number of mills requiring extensive repairs, or new machinery throughout, is larger by just the increase in knowledge and experience of the best millers in the country. The owners of old-fashioned and worn out mills are realizing more forcibly every day the necessity for improvement in order to enable them to keep up with the trade, and the demand which will follow their determination to improve will be less effected by the varying conditions of the trade than that for entirely new mills, which is dependent almost altogether upon the profits millers may be realizing at a given time.

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LEST some of the dusty coated men to whose care, skill and energy employers are indebted for success in operating the mills of the country, feel slighted by a failure to say a word to them, we will write a paragraph or two which will, we hope, be taken in the kindly spirit in which it is offered. The coming year promises to be one of fairly steady running in all our mills, hence there should be work for all who desire it. The sensible course of operative millers in declining to join in any organized movement toward trade-unionism is to be commended, and there is today no valid reason for the adoption of a new policy. The few associations now existing among operative millers are for the commendable purpose of fostering mutual charity, and for improving the minds of all, and spreading intelligence likely to benefit craftsmen in attaining a high degree of proficiency in the calling they have chosen. Agitation of the labor question and organization for the purpose of regulating wages and hours have always failed of their purpose, or, if successful in isolated instances, have ultimately proven the reverse of beneficial to those participating in them. Under present conditions the milling industry is prospering as well as any reasonable man can desire or hope to see it, and as we have before said, there is no indication that a change is likely to occur soon, if at all. It is a matter for congratulation that millers as a class have so much sense and know so well what is good for themselves as individuals and as a trade.

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THAT the year should close without an improvement in the very important expense item of insurance rates is a matter of profound regret, not only to us, but to every member and friend of the milling trade. That rates are now far above the actual risks of the business no one, not even insurance men, can deny, and yet this fact, which was as well understood Jan. 1, 1883 as to-day, has not served to induce any large body of millers to take steps to remedy an evil which is, in many cases, causing the balance sheet to show a loss instead of a profit. It is true that in one or two states mutual companies have been formed and thus a little good has been done, but this does not touch the root. The fault is with the mills and their owners. The risk must first be reduced by careful construction and careful operating before the insurance companies, mutual or old line, can do much to reduce rates. The manufacture of flour is, *per se*, one of the simplest and safest processes in the arts, but through the neglect of those engaged in the trade in caring for their own interests it has become a bugbear to the insurance companies, who load it with rates which would strangle almost any other line of manufacturing. With better built mills, more precautions against fire and more means of extinguishing it, even so conservative a class as the underwriters will, by and by, learn that mills are good risks. This change in their ideas must result from the effort of individual mill owners. Let each one look to it that his own risk is a good one and it will be but a short time before the insurance companies will look at it in the same light.

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SOME recent paragraphs in the NORTHWESTERN MILLER have discussed the matter of light and general cleanness in mills, and in the course of them we made mention of the effect that these things had on the help. Since the appearance of the paragraphs in question, the subject has received more thorough consideration. The surroundings of men operate on them all on the principle that like begets like. A dark gloomy mill will in time make dark, gloomy men. General disorder and dirt breed additional nastiness. It is true that where we find people in large or small numbers we find contamination of the soil and general impurities of atmosphere and all surroundings. This tendency of the aggregation of human kind to do harm to each other should be as carefully guarded against in the mill—a place where every influence sets its mark on the product and the producers—as in the best kept private house or public building. The sanitary side of milling has not been considered. The water which the employes drink, the air which they breathe, and the light which belongs to them are seldom thought of. At the same time it is not an uncommon thing for some one of the employes to go home and lie down and die of typhoid fever, or other similar disease of local origin. At the funeral service we frequently hear that "God in his inscrutable wisdom has called him away," when in reality it is man who in his inscrutable ignorance has sent him hence. One of the best medical authorities has said that in time people will be sufficiently civilized so that for every case of typhoid fever, diphtheria or other diseases of this kind there will be an investigation similar in character to the coroner's inquest of the present time, and with a view to conducting the case farther into the hands of the grand jury, for the purpose of indicting somebody for manslaughter. All such diseases are preventable, and in the course of things they will be regarded as disgraceful and finally criminal. The millers, as an intelligent part of the community at large, have their share of blame and responsibility, and they have as great an interest as any class of employers in exterminating the evils we have indicated.

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THE year closes, be it said with regret, with the art of bran compression in the same undeveloped state that characterized it when the new year dawned. We hope to be able to chronicle more cheerful news than this in our next holiday number.

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REGULAR readers of the NORTHWESTERN MILLER will perhaps observe that a careful selection of some of the more valuable and interesting matter which has appeared in its columns during the past year has been made for this issue—all of which will be fresh for new readers and, will, we believe, be appreciated by those who have read it before.

THE MILLS OF MINNEAPOLIS.

The present milling capacity of Minneapolis is shown in the appended table:

WEST SIDE.

Name of mill.	Operated by	1882. Barrels.	1883. Barrels.
Anchor	C. A. Pillsbury & Co.	850	900
Cataract	D. R. Barber & Son	600	600
Columbia	Columbia Mill Co.	....	1,000
Crown Roller	Christian Bros. & Co.	1,600	1,700
Dakota	H. F. Brown & Co.	200	250
Excelsior	C. A. Pillsbury & Co.	....	800
Galaxy	Cahill, Fletcher & Co.	800	1,000
Holly	F. S. Hinkle	250	250
Humboldt	Hinkle, Greenleaf & Co.	600	775
Minneapolis	Crocker, Fisk & Co.	....	600
*Model	R. P. Russell & Co.	250	....
National	Citizens' Bank	100	150
*North Star	H. J. G. Croswell	350	....
Northwestern	Sidle, Fletcher, Holmes Co.	1,100	1,300
Palisade	Washburn Mill Co.	550	1,500
Pettit	J. A. Christian & Co.	1,200	1,300
St. Anthony	Hinkle, Greenleaf & Co.	400	450
Standard	D. Morrison & Co.	1,200	1,500
Union	G. W. Goodrich & Co.	250	310
Washburn A	Washburn, Crosby & Co.	2,700	3,200
Washburn B	Washburn, Crosby & Co.	800	1,000
Washburn C	Washburn, Crosby & Co.	1,600	2,000
Zenith	Sidle, Fletcher, Holmes Co.	600	600
EAST SIDE.			
Pillsbury A	C. A. Pillsbury & Co.	5,000	5,200
Phœnix	Stamwitz & Schober	250	275
Total capacities		21,250	26,660

*Burned and not rebuilt.

The figures in the above table for 1882 show what the milling capacity of Minneapolis was in September of that year. In the ensuing year the North Star and Model mills, with 600 bbls. capacity, were burned, while the Columbia, Minneapolis and Excelsior mills, with a total capacity of 2,400 bbls., were completed and put in operation. The Palisade mill was thoroughly remodeled, and the capacity increased from 550 to 1,500 bbls. per day. Other less notable increases have been made in the Washburn A and other mills. Another source of increase was from the mills, while really no machinery was added to them, being able to make more flour on the wheat in the fall and winter of 1882-'83 in a given time than ever before, thus simply giving them a higher record. Of course it is understood by all that in giving the capacity of a mill, the maximum figures are universally used; but we must say that the amounts opposite the mills as above set down are nearer the real working figures than is usually the case with statements of the kind, it being our aim to get as near the exact truth as is possible.

Flour produced for three fiscal years, ending Sept. 1:

	Bbls.
1880-81	2,900,268
1881-82	2,301,667
1882-83	4,000,463

EXPORTED.

1878	109,183	1881	1,181,322
1879	442,598	1881-82	627,686
1880	769,442	1882-83	1,700,750

Wm. McLaren of Milwaukee, appears to be a man of wisdom. Widely known for years as one of the most enterprising and energetic grain dealers of the west, he considers that he has made money enough to begin to enjoy himself, and has decided to close up his business. As he has by no means reached the time of life at which men generally begin to tire of active pursuits, his decision is more noteworthy. There are thousands of business men who have been able to close their affairs with ample fortunes, at one time or another, who are now struggling desperately to save themselves from bankruptcy. To know when to stop is one of the most difficult things in business life.

STEVENS ROLLER MILLS

Greater capacity.

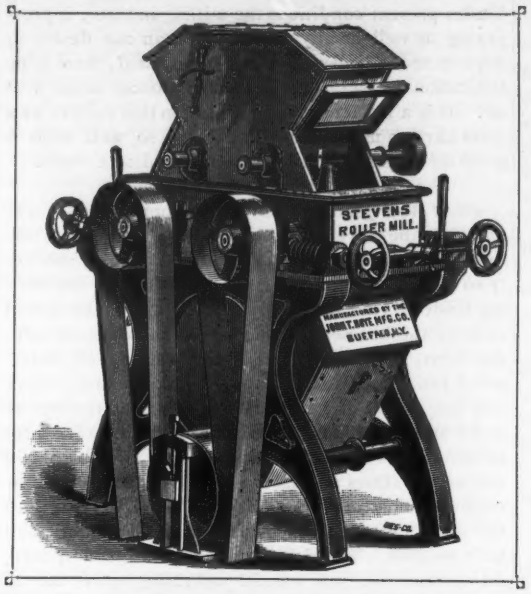
Require less power.

Positive in action.

Easily adjusted.

Have all valuable and modern devices.

Produce more and better Middlings than any other Roller Mills.



Adapted to all operations on wheat from breaks to finishing.

Most successful Roller Mill in the world.

Especially adapted for bran and tailings.

Send for prices. Correspondence solicited.

FIFTY YEARS EXPERIENCE

1834. *OF* 1884.

SUCCESSFUL MILL BUILDING.

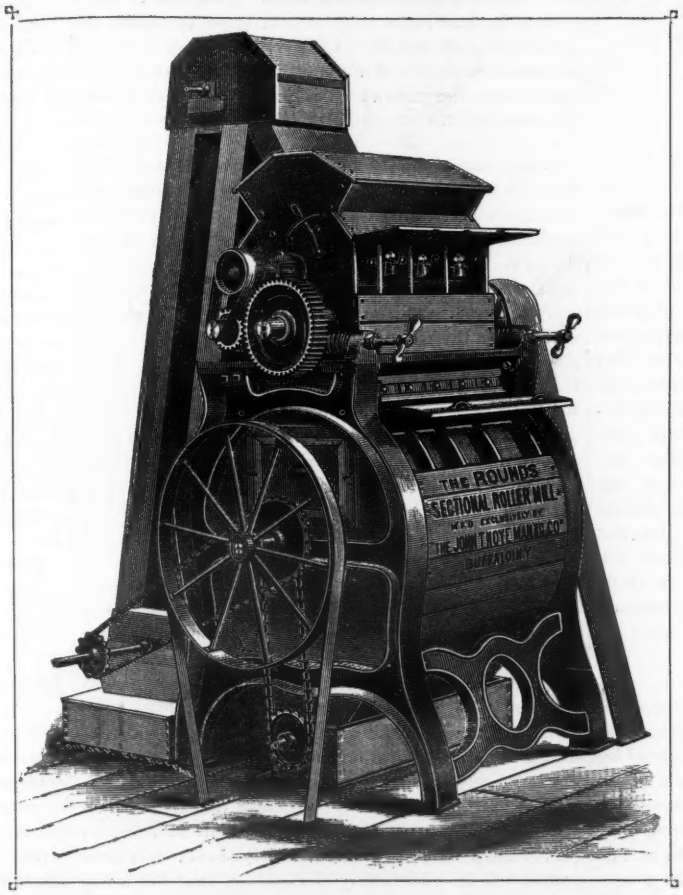
ROUNDS SECTIONAL ROLLER MILL.

Designed for mills of small and medium capacity.

Give as satisfactory results as line rolls; easily set up and operated.

Made either with or without cylinder scalpers.

Have all the desirable features of the larger mills. Write for particulars.



CONCENTRATED MILLS

Save millwright work.

ELEVATORS.

Compact, easily operated and equally satisfactory in results.

Best concentrated mill in the world.

Send for special printed matter and prices.

THE JOHN T. NOYE MNFG. COMPANY,

BUFFALO, NEW YORK, U. S. A.

THE EARLY HISTORY OF NEW PROCESS MILLING.—VII.

THERE are many and good reasons why the writing of history should be delayed until some years after the date at which the events it should describe truthfully and impartially, transpired. Chief among these is the fact that the judgment of a contemporaneous writer is almost invariably misled or biased to some extent by the opinions and statements of men or parties whose interests, prejudices or passions are in opposition to the actual facts. Very few matters are of such small importance that conflicting views of them are not entertained by different parties, and in the case of a great invention, involving millions of dollars and revolutionizing one of the chief industries of the world, it is not strange that bitter personal animosities, willful misrepresentations and persistent efforts to falsify facts should be evolved. The immediate parties to a contest of this kind can of course never be brought to accept the views of their opponents, but an entirely disinterested and scrupulously impartial reviewer of both sides of the question at issue, as presented by the contestants themselves, may reasonably hope to do justice to all and discover the truth. A party to such a contest is the subject of this number of the series of papers on "the early history of 'new process' milling" which we have given our readers from time to time during the past year, and we believe that a sufficient length of time has elapsed since that contest was concluded so that a history of the events of which it forms a part may now be written which will carry conviction of its truth to every unprejudiced mind.

Geo. T. Smith was born in the village of Le Roy, N. Y., in 1841, and is therefore now in the very prime of life. His father was a miller and a good one, and from him Mr. Smith learned the miller's trade, as it was then practiced, most thoroughly and completely. He was gifted with a very decided taste for mechanics, and the inventive turn of his mind was evidenced some years before his history becomes of interest in this connection, by the invention of a wheat smutter, and a turbine water wheel. In 1870, Mr. Smith was employed in the mill of Mr. Stephen Gardner, at Hastings, Minn., known as the Vermilion mill. The mill was a new one, a fact which will sufficiently explain the condition of the buhrs without further description. Mr. Smith was a very expert stoneman, justly proud of his skill with pick and staff, and it was no doubt for this reason that he was given charge of the stones. The story of the Vermilion mill has been told and re-told until it is "familiar as householdwords" to nearly every miller in the land, and need not be repeated in detail here. Suffice it to say that before it had been long in operation its product was incomparably superior to any flour that had ever before been made from spring wheat, and it, therefore, became a sort of Mecca to the millers of the spring wheat section, who made pilgrimages to it by scores. They were freely allowed to inspect every detail of its arrangement, the travel and separations of the meal, the clothing of the reels and manner of grinding, and in some cases were even furnished with milling samples of the wheat being ground. But imitate its methods as they would, they were never able to equal its results. Evidently the vital point had been overlooked, or its value underrated. Indeed, it is more than doubtful whether the owner of the Vermilion mill himself, or any of his employes other than Mr. Smith, comprehended the reasons of its success. If this was not the case, it was quite impossible, without going entirely out of the commonly accepted standards for judging of the motives of human actions, to understand or account for his course in inviting his business competitors to come in and share a bonanza, the secret of which he could have withheld from them for a long time, at least. It is far more probable that he was no wiser than his fellows; and they, almost with one accord, scouted the idea that the fact of the buhrs being smoothed a little more or less—which was Mr. Smith's explanation of the superior work of the mill—was sufficient to account for the difference between its flour and their own. That was a dozen years ago. To-day a leading feature of every system of milling is to accomplish by gradual reduction, the same object Mr. Smith aimed at through the use of smooth buhrs—the removal of bran and germ without pulverizing them.

Finally there came to the Vermilion mill, a mill owner, not himself a practical miller, therefore with no prejudices or preconceived ideas to warp his judgment, and not above learning from an acknowledged master of his calling—Mr. Geo. H. Christian. To him it did not seem unreasonable or improbable that the mixture of a considerable percentage of powdered bran with the flour, would injure its quality in every respect; and he was impressed with the plausibility of the theory that smooth buhrs and reduced grinding surfaces were likely to largely reduce the proportion of bran ground to powder.

As a result of this visit, Mr. Smith was invited to come to Minneapolis, and carry out his ideas in the mill operated by Mr. Christian, now the Washburn B. He accordingly removed to this city in February 1870,

GEO. T. SMITH.

and at once entered upon his duties. The dress he proposed using was so different from anything which had previously been attempted, and so opposed to the traditions and prejudices of the trade, that he was met at the very first step by a strike, in which every stoneman in the mill, and later nearly every one in the city, joined. A glance at the excellent portrait of Mr. Smith, which we present herewith, will convince any one at all accustomed to reading character that he is not the sort of man to be overcome or discouraged by any slight obstacles. In this case, the services of experienced stonemen not being procurable, he availed himself of any labor that offered, some of it being entirely unskilled. The condition in which the face of a buhr would be left by such workmen can readily be imagined, and was not a pleasant subject for the contemplation of a man who believed above all things in smooth stones. To remedy the faulty workmanship he hit upon the plan of rubbing both lands and furrows with sand and water until a surface of the desired smoothness had been obtained; and with this dressing the stones were finally started, after nearly two months of constant labor had been expended upon them; the result fully vindicating the correctness of his theory, as the Vermillion flour was beaten from the first and for the first time. Mr. Christian's satisfaction with the success of the new system was evidenced by his immediately advancing Mr. Smith to the position of head miller—he at first having had charge of the stones only.

The triumph was a great and gratifying one, but it was far from complete, as the new dress produced middlings, that *Bête noir* of old time millers and milling, in large quantities. What to do with the middlings was a very serious question indeed, and as one means of solving it he procured Mr. Christian's consent to his making some further experiments with a machine then in the mill, which had been built for the purpose of cleaning middlings, and placed there some time previously to his coming to Minneapolis, by E. N. Lacroix. The machine had been tried, condemned and abandoned by his predecessor, and its removal decided upon. It consisted of an enclosed framework, within which a sieve was suspended, and to which mechanism for vibrating the sieve and rotating a feed roll was attached. A suction fan was so arranged as to draw a current of air, entering at openings cut through the sides of the casing below the level of the sieve frame, upward through the silk covering of the sieve. The sieve was clothed with silk of the same mesh its entire length. Mr. Smith's first trial of the machine showed him that nearly everything fed on to the sieve was discharged over the tail, instead of passing through the silk, and an examination discovered that this was due to the meshes of the silk being filled with granules of middlings, too large to pass through, but wedged in so tightly that the motion of the sieve failed to dislodge them. On inquiry he learned that in former experiments the silk had been kept open by brushing it on top with hand brushes. That manner of cleaning the cloth was again resorted to, but a very brief experience of it convinced him that it was impracticable, if for no other reason, than that good and bad material was forced through the cloth indiscriminaely. Brushing the under surface of the sieve cloth by hand was then tried with much more satisfactory results, but the operation was laborious and expensive, requiring the constant services of one man. To overcome this objectionable feature, Mr. Smith devised and constructed traveling brushes, so-called, placing them underneath the sieve and arranging them to work against the under surface of the silk. In his first plan for these brushes he contemplated making them three in number, of a length corresponding to the width of the sieve, and attaching them at proper distances from each other, to a sliding frame, to which a slow reciprocating motion was to be imparted, by means of crank wheels placed on a suitably driven shaft, and connected with the frame by pitmans on both sides of the machine, the travel of the frame being equal to the distances at which the brushes were placed from each other. But as this construction involved considerable expense, and the experiment, if a failure, would be at his own cost, he decided on mounting the brushes on endless belts running always in one direction, and arranging them so that they should sweep the under surface of the silk from head to tail of the sieve.

The mechanical appliances by which this plan was carried out were of the most primitive character, and consisted of two shafts of the required length, turned out of timber of such size as permitted the formation of the necessary pulleys in one piece with the shaft. At the ends the shafts were reduced to the proper size for journals, and were mounted in wooden bearings; one being placed at each end of the machine, inside the casing and underneath the sieve frame. The shaft at the head of the machine was the driven one, receiving its motion from a pulley on the feed roll shaft, and of course transmitting a like motion to the one at the opposite end of the machine through the belts already mentioned. Ways, arranged lengthwise inside the machine frame, were provided, to support the brushes and guide them against the cloth. The brushes were three in number, of the

kind still in common use about mills, and known to the trade as counter brushes. The handles were cut off and the brushes mounted separately, each having a belt of its own. Their united length somewhat exceeded the width of the sieve, insuring the brushing of the entire under surface of the silk. The cost of the whole affair when ready to be put in operation corresponded to its simplicity, being a few cents more than $7.

This, in brief, is the history of the invention and application of a traveling or driven brush to the work of cleaning the sieve cloth of a middlings purifier. The improvement in the work done by the machine after the addition of the brushes was very marked, but it will readily be believed that the first idea suggested by seeing it in operation would be an effort at improvement. With this purpose in view, Mr. Smith obtained Mr. Christian's consent to his building a purifier after his own plans. In the vocabulary of the subsequent purifier suits this purifier was known as the "double machine," and was so fully described in the first paper of this series, devoted to Mr. Geo. H. Christian, that only a general outline of its construction need be given here. It consisted of a frame-work about eight feet in length, by six in width and height, enclosed similarly to the present day purifiers, and was divided longitudinally through its center by a vertical partition, into two compartments, in each of which a sieve was suspended. Under each sieve were traveling brushes, the same in principle as those already described, and on top of the frame a suction fan was mounted which drew air through the sieves in both compartments; the opening to the fan being through adjustable valves which permitted the regulation of the force of the air current through the cloth of each sieve separately. Each sieve was at first clothed its entire length with silk of the same mesh, but coarser silk was used on one than the other. Across and above the head of the sieves, and inside of the frame, a grading reel was arranged, clothed with two numbers of silk corresponding to the numbers used for covering the sieves, the finest silk being at the head of the reel. The middlings coming through this silk were delivered to the sieve having the finest clothing, the remainder going to the second sieve. The silk on both sieves was afterward changed, coarser cloth being placed at the tail of the fine middlings sieve and finer at the head of that taking the coarse middlings.

This machine was finished and put in operation in June, 1871, and was a really good and efficient purifier. Immediately following its completion, Mr. Smith designed and had built in the mill a second purifier, different in many very important respects from the double machine, but embodying all its valuable features. This purifier was prominently mentioned in the later purifier suits, and was described as "the long machine." The frame of this machine was about ten feet in length, four in width and seven in height. It had one sieve only, the reel was omitted, and the space above the sieve was divided into a number of compartments, having no communication with each other, by transverse partitions. The suction fan was placed in a wind trunk extending the whole length of the machine, on top, and each of the compartments mentioned above had access to it through adjustable valves. The sieve was clothed with as many grades of silk as there were compartments, the finest cloth being placed at the head, and coarser grades under each successive compartment towardt he tail. The middlings, ungraded, were spouted into a hopper in the head of the machine and fed from it onto the sieve by a feed roll. The brush cloth-cleaning device was substantially the same as used in the double purifier. This machine was completed in July, 1871, and the quality of its work was fully equal to that of the best purifiers now in use. In fact, in every essential feature and every working principle, this machine was identical with the Geo. T. Smith purifier as it is built to-day.

The latest catalogue issued by the Smith Co. says:

"The Geo. T. Smith middlings purifier, as originally constructed, contained the following elements which were never before combined in any machine for the same purpose, or in the same relation to each other, viz: An upward air current through the covering of a reciprocating sieve, clothed with silk of increasingly coarser mesh from head to tail; an enclosed air space above the sieve, divided by transverse partitions into separate compartments having practically no communication with each other, and each opening into the chamber of an exhaust fan through an adjustable valve arranged to regulate the strength of the air current through each compartment separately; a series of dust settling chambers or testing pockets corresponding in number to the compartments above mentioned, and a brushing device operated automatically and working against the under side of the sieve clothing. The principles of purification which this organization was adapted to carry out have never been departed from in the manufacture of this machine. Only such modifications have been made in its construction as were calculated to increase the efficiency and convenience of their application."

It is doubtful if there is another case on record where a machine of so great importance as the middlings purifier came from the hands of its inventor in such a completed and perfected state, that the only changes in its construction which have been suggested by years of use are mere matters of convenience, not in any manner affecting the working qualities of the machine. It must certainly be conceded that Mr. Smith fully understood every requisite for the purification of middlings, and that his combination and application of the mechanical forces necessary for the purpose could only be the work of a most ingenious and well instructed mind. And right here it may as well be said, once for all, that Geo. T. Smith is unquestionably the inventor of every really important feature in that class of middlings purifiers which are known as sieve machines, as distinguished from those which use air currents only in the process of purification, and to give the proofs on which this assertion is based.

First, as to the brush on which his application for patent was placed in interference with La Croix's. La Croix himself, on his examination in this case, testified in answer to cross-interrogatory: "I did not make the traveling brushes on the machine used in the Washburn mill, nor the pulleys nor the belting there used to operate them;" and the examiner of interferences in deciding the case said: "From this concession on the part of La Croix, it is plain that he can set up no claim covering the invention of Smith. As between the parties to this interference, priority of invention is awarded to Geo. Smith for the invention embraced in the second clause for his claim. Inasmuch as the award is made on a concession of La Croix, no limit of appeal will be allowed in this case."

Next, as to the double machine, the invention of which was claimed by Mr. Christian, as stated in the first paper of this series, and which was also claimed by Barter; the features involved being the graded sieve cloth and the controllable air currents, graduated to suit the material on different sections of the sieve. In disposing of Mr. Christian's claim the commissioner of patents, to whom the case had been appealed, decided after a careful review of all the evidence submitted that Mr. Smith was entitled to the invention, giving as his reasons therefore the conceded fact that he was the inventor of the brush, as first applied to the Lacroix machine, that he superintended the construction of the machine, the men employed upon it taking their orders from him, they believing him to be the originator, and finally that Mr. Christian in afterward taking a shop license to use the invention in dispute from Mr. Smith virtually conceded to him its invention.

In Barter's case, after a most scathing review of the evidence offered in support of his claim, the commissioner concluded: "With this view of the unsatisfactory nature of Barter's evidence, and holding this to be the proper rule as to reduction to practice in this case, I must affirm the decision of the examiners in chief, and award priority of invention to Smith."

Still stronger evidence than the above, if possible, is found in the fact that immediately following his invention he was engaged to reconstruct the mills of such leading millers as the Pillsburys, the Archibalds and the Ames', as already detailed in preceding papers of this series; men who were acquainted with all the facts in the case and who certainly would not have employed an impostor.

As for the other fellows who knew all about it long in advance of Smith, or, who suggested this or that important feature, they are simply members of a well known and very numerous class, who never fail to come to the front under like circumstances, and may safely be relegated to the company of the great army of followers of the Baron Munchausen.

For a number of years after his invention of the purifier, Mr. Smith was made to lead a truly purgatorial existence, through the powerful and persistent efforts which were put forth to deprive him of his rights, but with indomitable pluck, energy and perseverence, he met and defeated every opposing claim, and in the end secured a number of patents broadly covering his machine, which are unquestionably among the strongest and most valuable ever issued in this country. This portion of his history, however, does not properly come within the scope of this article. It is briefly outlined in the description of the company's works published in this number, and it may not be amiss to say in addition to the facts there stated, that he is as unspoiled by prosperity as he was unconquered by adversity; that the fortune he has accumulated is most worthily and unselfishly employed; that he is large minded and liberal in all his views and dealings, is a good citizen, a steadfast and generous friend, and has earned the confidence and esteem not only of his immediate business associates, but of all with whom he has come in contact.

The Société Francaise des Elévateurs has now a floating elevator in full work at Bordeaux. The company was formed for the purpose of introducing grain elevators at the chief French ports, to reduce the cost of handling the grain. The system employed is Monsfield's, as improved by the manager of the company, Mr. L. F. Pierson, and resembles the elevators in use in this country. The barge carrying the elevator and necessary machinery is 100 feet long, 30 feet broad, and 12 feet deep, drawing 7 feet of water. The barge has a screw, and is therefore self-propelling; but it is generally cheaper and more convenient to employ a tug boat to move it from one part to another in the port. The power is furnished by an engine of 150-horse power. The elevator tower is 80 feet high, and it measures 23 feet by 25 feet at the base, and 16 feet 6 inches by 16 feet at the top. Since its erection the elevator has been thoroughly tested, and its capacity is stated to be about 160 tons per hour, or sufficient to discharge a vessel of 1,500 tons between morning and evening.

As to railroad progress in Mexico, the New Orleans *Times-Democrat* says: "The English were twenty years in building 263 miles of railroad from Vera Cruz to the capital. The Americans have built 2,500 miles of railroads on Mexican territory within five years. The Central company alone has constructed 1,400 miles at different points, and the Mexican National about 900 miles. The subsidy granted these companies will average $11,000 in round numbers per mile. It results then that the present administration has paid these two companies the enormous sum, for 2,000 miles of road, of $22,000,000. It is probable that more than 1,000 miles of road have been built by Mexican and other companies during the same period, and which enjoy the same or even greater subsidies. To the above sum must be added $11,000 000 more. The total of $33,000,000 has in a great measure been paid in cash.

During the milling year ending Sept. 1, 1883, the Minneapolis mills made 4,000,463 barreis of flour, of which 1,700,750 barrels were exported. This shows an increase in production over 1882 of 1,698,796 barrels and an increase in exports over 1882 of 1,073,064 barrels.

THE
LEADING + MANUFACTURERS
IN THE WORLD OF
Elevator Buckets
ELEVATOR BOLTS, ELEVATOR BOOTS,
Iron and Steel Conveyors.

Thornburgh & Glessner
MANUFACTURERS OF
MILL AND ELEVATOR Supplies.
18 20 22 NORTH CLINTON ST
CHICAGO

WITH
FACILITIES
EQUALED BY
NO OTHER HOUSE
IN EXISTENCE,
We are in a position to supply *every demand* in the line of
Elevating and Conveying Machinery.

CASE MANUFACTURING CO.

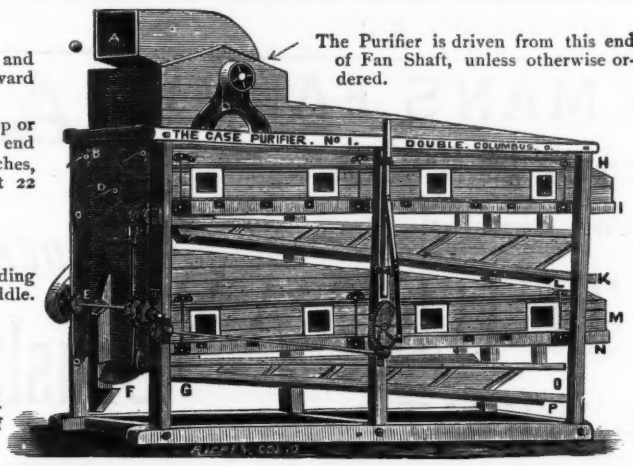
Our Purifier is being more highly esteemed every day. Our "Bismarck" Mill and accompanying Machinery for Gradual Reduction grows more and more in favor with every Mill we start up. We make special sizes for different capacities, guaranteeing results every time. If you want a Single Machine or a Full Mill write us.

• THE CASE •
Middlings × Purifier

A—The Fan Spout, is reversible and can be made to blow toward either end of Purifier.

The Fan can be placed on top or end of Purifier—when on end it increases the length 39 inches, and diminishes the height 22 inches.

B—Air-valve upper Riddle.
C—Cut-off for upper Riddle, sliding one-half the length of Riddle.
D—Air-valve, lower Riddle.
E—Upper Riddle tails off here.
F—Lower Riddle tails off here.
G—Cut-off for lower Riddle, sliding one-half the length of Riddle.



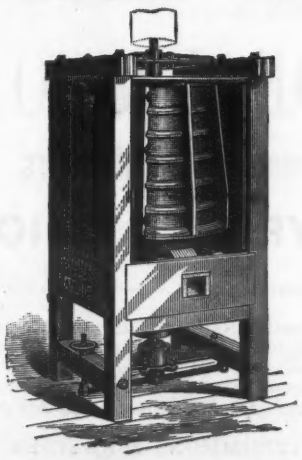
The Purifier is driven from this end of Fan Shaft, unless otherwise ordered.

H—Feed Box for upper Riddle.
I—Bolting Cloth for upper Riddle.
K—Purified Middlings from upper Riddle.
L—Cut-off from upper Riddle.
M—Feed Box for lower Riddle.
N—Bolting Cloth for lower Riddle.
O—Purified Middlings from lower Riddle.
P—Cut-off from lower Riddle.

The upper and lower halves are each a complete machine, and can be run together, or separately, as desired.

CASE MANUFACTURING CO., COLUMBUS, OHIO.

THE IMPROVED HUGHES DUSTER.



Adapted to all Systems of Milling and all kinds of Offal.
SIMPLE, DURABLE and EFFECTIVE!

Millers using the Hughes Duster on Bran, between the last two reductions, claim it lessens the production of low grade from 3 to 5 per cent.

NEARLY ONE HUNDRED

of these machines are now running successfully in Minneapolis alone. They are endorsed by the most prominent millers in the country. Write for circular and price list to

STEPHEN HUGHES MANFG. COMPANY,
HAMILTON, : OHIO.

We Pull Together

THE MILLSTONE AND THE NORTHWESTERN MILLER,

AND

THE NORTHWESTERN MILLER AND THE MILLSTONE,

Drive tandem with each in the lead, for the best stakes in the field of milling journalism. ☞ ***BOTH ARE THOROUGHBREDS,*** *sired by* ***BEST TALENT,*** *out of* ***MONEY-BAGS.*** *A Combination that has never yet been defeated in a race for precedence in journalism. It takes only*

TWO DOLLARS AND A HALF

to ride with the drivers. No hangers-on behind!

A POINTER: *The Miller who buys this Combination is*

A SURE WINNER.

Purchase tickets from either party at the box offices in INDIANAPOLIS, IND., or MINNEAPOLIS, MINN.

D. L. WELLMAN'S FARM,

OWNER, PROPRIETOR AND PROPAGATOR

OF THE GENUINE

SASKATCHEWAN

FIFE WHEAT,

FRAZEE CITY, MINNESOTA.

FRAZEE CITY, Minn., December 11, 1883.

The firm of Abernethy & Wellman, Minneapolis, Minn., for the sale of Saskatchewan Fife Wheat, has been abandoned. W. J. Abernethy & Co. have not got, nor had for sale a bushel of my wheat this year. Hereafter any parties who may wish some of this variety of wheat for seed, will please write to the undersigned, a Northern Pacific farmer, and the owner, propagator and proprietor of the pure and genuine Saskatchewan. D. L. WELLMAN.

Office of R. L. Frazee, Manufacturer and Dealer in all kinds of Lumber, Flour, Feed and Grain. Mills at Frazee City and Pelican Rapids.

FRAZEE CITY, Minn., November 4, 1883.

TO THE FARMERS AND MILLERS OF THE NORTHWEST:

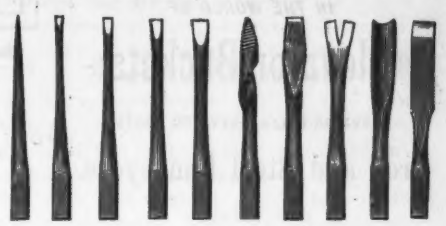
I own two large flouring mills, and am highly interested in good wheat for seed and milling purposes. Five years ago Capt. D. L. Wellman, of this place, received a small sample of Scotch Fife from the Saskatchewan valley, in Manitoba, which he has since been raising, picking over, propagating, and has given the name of Saskatchewan Fife. From personal inspection at many different times of the grain in the head and threshed, I pronounce it the best and purest lot of No. 1 hard wheat in the Northwest. It is entirely free from smut this year, where other varieties are badly injured, which is an important recommend for it, and parties need have no fears in sending money to him to secure some of it for seed, for there is no humbug in it. His prices are reasonable for the time and pains he has taken.

R. L. FRAZEE.

Patent Hollow Handle

TOOL SETT.

The Handiest Pocket Tool MADE.



JUST WHAT EVERY

Mechanic and Workingman

NEEDS AS BAD AS A KNIFE.

The above Tool is Twice the size of Cut.

IT IS FIRST CLASS IN EVERY RESPECT

The Tools are made of best refined steel, the jaws, clamping nut and ferule are nickel plated, the handle is of Cocobolo wood, nicely finished, is hollow with screw cap to contain the tools, and the tools are squared largest at the end and cannot pull out. That every man can afford to have one, I will send them postpaid at the low price of $1.50 each.

URA H. PALMER, Tiffin, Ohio.

CALIFORNIA

DEAL'S CALIFORNIA MAGNETIC

Brush Smutter & Separator

COMBINED.

Warranted the very best in America,

The purchaser being the judge after 60 or 90 days' trial. We manufacture a complete line of Grain Cleaning Machinery, and guarantee every machine to give entire satisfaction or no pay. Send for circulars; it will pay you.

M. DEAL & CO.,

Sole Owners and Manufacturers,

BUCYRUS, - OHIO.

JACKSONVILLE, ILL., Sept. 12, 1883.

M. DEAL & CO., Bucyrus, Ohio:

Gentlemen:—Enclosed find draft of Jacksonville National Bank on Messrs. Gelman, Son & Co., of New York, in payment in full for the No. 4 California Magnetic Smutter and Separator Combined, purchased of you on *60 days' trial. After running the machine a little over half the time, we are so well pleased with its work that we are prepared to express our unqualified approbation, and accept and pay for it.*

Yours truly,

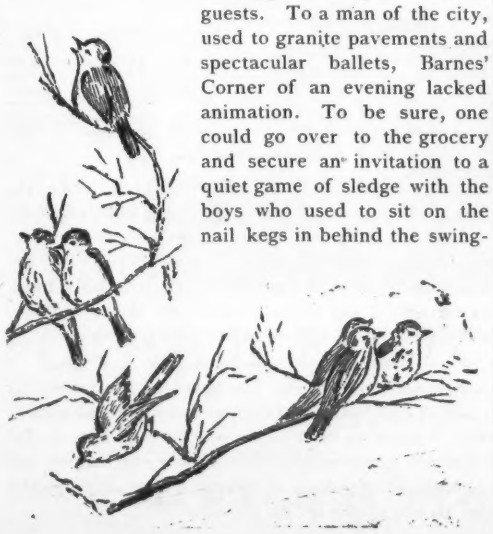
FITZSIMMONS & KREIDER.

A MILLER'S DAUGHTER.

BY GUS. THOMAS.
(With illustrations by the author.)

T is the day before Christmas and I am three days' ride from home. Where shall I spend the holiday? Let me see. I have an old railway guide in my valise, a little out of date for time-cards, but I dare say approximately correct on geography. I am at Mattison. The tissue map I carefully unfold. Mattison? Here it is, Wilson county. Wilson county? Why Barnesville mustbe somewhere near here. If so, I will spend to-morrow with my old friend Tom Barnes. I shall get a good country dinner and, better yet, will see his daughter, Mattie. I was always anxious to know what kind of a woman she would become. When I first met Tom, his place was called Barnes' Corner. It had a store and two or three houses, with a population of as many families. I had gone there with a millwright to fit up a mill that Barnes had built. That was twelve years ago. The little community tacitly recognized him as its head. He was a typical pioneer, a man of nerve who fearlessly did the right, loved his wife and child and had family prayers. He had a rough faculty of talking too, and often of a Sabbath the neighbors would gather at his house, when Tom, in a simple, square-toed kind of way, would conduct a rude service, preaching fraternal love and a hundred cents on the dollar. His politics—well, never mind those; it is a subject upon which we harmoniously disagreed.

At the time I mention, the millwright and myself were his guests. To a man of the city, used to granite pavements and spectacular ballets, Barnes' Corner of an evening lacked animation. To be sure, one could go over to the grocery and secure an invitation to a quiet game of sledge with the boys who used to sit on the nail kegs in behind the swing-



ing codfish, but even this pastime, elaborated as it might be by an occasional nip at the bag of dried apples, lacked variety. It may have been this dearth of amusement, but I think it was also her winning way that drew my evening attentions to Mattie, a little dark-eyed, soft-voiced elf of six whose every playful touch seemed a caress. As I recall the childish face, framed by these intervening years, I do not wonder that when the village grew with people she crept into their hearts.

Since then on several occasions a year or two apart, Barnes had called upon me in the city. The Corners had amended its name by striking out all after the word Barnes and inserting the letters v-i-l-l-e, making the revised section read Barnesville. There was a magistrate, now with a residence near the mill, a red school house across the creek where religious services were held on Sunday, an imported school teacher, reputed a judge of juvenile human nature and good whiskey, and who could describe "the exact orbit of the rings surrounding the planet Saturn."

The town also boasted a tavern. As for a minister, there had been one or two who had remained a short time and then departed. The church contribution is perhaps the revenue that first feels an effort at economy, and to Barnes, who ground the grain for their daily bread, was usually allotted the office of satisfying their spiritual hunger. He had grown somewhat expert in the business, and could on reasonable notice reel off a fair, unbolted sermon. In print and on a city market the article would perhaps grade below sample, but it went with the Barnesvillians, who doubtless felt a pride in encouraging the home production.

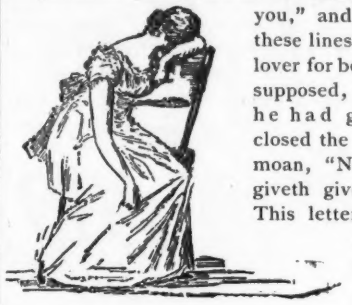
I knew these things, and concluded, notwithstanding, to spend my Christmas, if possible, with Barnes. He would be surprised to see me, and I would be welcome. Mattie maybe had forgotten me, but with some show of honesty I would kiss her for old acquaintance sake in the presence of her parents, the sweetest of the few privileges that come with a bald head. I would escort her to meeting in the morning, while her rough and bronzed admirers stood around the school house door and mentally consigned me. With a variation of such pleasing reflections playing round the pleasant theme, I made my inquiries and preparations for the trip. Noon found me in the stage-coach starting briskly for Barnesville. The coach had,beside myself one occupant. I took a complete inventory of his personal appearance. He was so quiet and preoccupied that I could have put up a red flag and sold him out,and I think without attracting his attention. I mentally jotted him down as twenty-six years of age. If he had a beauty, it was his graceful strength. He was evidently in trouble. I probably would have cared nothing about that fact,as I am naturally selfish,if he had not also been in the stage and my only companion. After a silence of painful length I ventured a few commonplaces. Was he acquainted in Barnesville, etc.? Did he know Barnes? I fancied the last question made him a little restless. Perhaps the subject was not congenial. I would change it. I asked if he knew Miss Mattie Barnes. "My God,man!" he answered, "She is my wife," and the poor fellow buried his face in his hands, weeping as a strong man does. This announcement, preceded as it was by the incendiary expletive,'made me a little uneasy. I felt a strong impulse to turn back, but the snow was falling heavily,and we were some miles from Mattison. Perhaps a little diplomacy would recompose my fellow traveler. I naturally felt myself the cause of this outburst of his grief, the nature of which was of course unknown to me, and my retreat must be conducted with caution.

Viewing the matter in that light, I ventured to say, with an effort at a conservative tone, that might be mistaken for either sympathy or astonishment—"Your wife!"

After a pause of a moment he said again, "My wife," and then, unbidden, told his story.

He had been a workman in her father's mill, and knowing Mattie, loved her. He had no riches but such as he found in the wealth of love she gave him. These of course could not be immediately realized upon, and Barnes, who chose to forget the condition of his own exchequer when he won the heart of Mattie's mother, refused permission to the marriage. The lovers fretted for a while,and then as lovers often are, were clandestinely made one.

A few weeks of stolen meetings followed, and then a separation. A circus passed through the town, and finding the lover a clever carpenter, offered him a tempting salary to go with them. He left. Correspondence was regular until the manager, changing his original intention, had shipped from a gulf port to the more remunerative fields of South America. The letter telling this to the young wife had apparently never reached her, for the lover placed in my hand a well-worn, tear-stained missive signed by Mattie, and forwarded to him from point to point along the route of the show. It was a little wail, sweet in its sorrow and tender in its tone as the gentle voice I had known years before. It was written on a Sunday evening previous to her departure from her home. She wrote that his child should not be born in a community where its mother was regarded with suspicion, to which the absence of its father lent a color. She had been to the little school house to hear for the last time her father preach. His text had been from the 14th chapter of St. John,"Not as the world giveth give I unto you," and, dilating upon these lines, she chided the lover for being lured, as she supposed, by the gay world he had gone into, and closed the page with a little moan, "Not as the world giveth give I unto you." This letter had been received months after its date, and the agonized husband immediately hurried home. The parents were broken-hearted at their daughter's absence, and the gossips, in the presence of her champion, denied the part they had played.



Search proved fruitless. The young man was now returning from a short trip that had been prompted by what seemed a clue. A farmer near Mattison reported meeting a young woman on the highway, whose description answered that of the missing wife, but nothing had been gained.

The poor fellow was in despair by going back, to spend an unhappy Christmas where, one short year before, inflated with manly pride and hope he had ambled through the merry dances with his pretty sweetheart.

Aided by his present condition it was an easy flight for my imagination to picture Barnes and his wife in a similar state of despondency. I debated seriously the advisability of stopping at the tavern and returning to Mattison by the stage next day,without intruding upon their grief. This thought was of course prompted by my selfishness. My more generous impulses prevailed, however, when upon arrival I learned that the stage would make no trip on Christmas.

The evening with Barnes was a sad one, and I was glad to retire. The spare room to which I was shown was the same I had occupied on my first visit with the millwright. It overlooked the street. Through its casements years before, the bright morning sun used to shine and wake me if on the night previous I had neglected the precaution of hanging my overalls over the window. The same old woodcut of Flora Temple in trotting costume, was on the wall, and from the other side the well remembered colored print of the Holy Family regarded the veteran roadster with the same look of compassion that I, in those less sober days, had fancied an expression of approval for the gallant mare so appropriately making tracks. Many a time the child Mattie had climbed on my knee to look at the pretty lady, and I, if confident no older ears listened to my efforts,had told her the story of the infant Jesus and the pretty German custom of good will that filled with sweets the stockings of the modern baby, as were the hearts of men with tidings of great joy.

A train of such reminiscent fancies denied me sleep, and I walked to the window, watching the falling snow and dreaming still. A female figure stood hesitatingly at the gate. At my appearance she passed up the road. Some neighbor, I said, who, seeing company, has postponed her call. In the morning I had forgotten the circumstance.

Before breakfast Barnes asked me to accompany him to the mill. The ice gorge in the creek had moved the day before, and shifted the bridge that crossed it to the school house. It had therefore been decided to hol_ the Christmas service in the mill. Our visit was for the purpose of starting some fires and arranging seats for the congregation expected.

They assembled at the proper hour, the good people of the village and country round about. The mill was filled with them. The young men clean shaved and starched, and their sweethearts perfumed and smelling like a matinee. The 'squire was there from next door, and the school teacher sat over by the buhrs with the boys from the tavern, to whom clung a suspicious odor of nutmegs.

Barnes preached the conventional Christmas sermon, relieved once or twice by a burst of stolen eloquence. He spoke of the night before, and calling attention to the bright sun on the fields of snow outside, likened it to the light the coming of the Saviour shed on the previously gloomy earth. He told of the star of Bethlehem that pointed the manger birthplace, and to lend realism to his story, threw open the half doors that separated the stable of the mill from the room in which we were. It was a dramatic picture.

I knew that his sources of information on the subject were no more extended than my own, yet I found myself much affected by his simple, straightforward manner, and when he told as a matter of course of the infant's cries that the wise men heard, I do not wonder that the superstitious in his audience dropped to their knees as through the open doorway the cry of an infant came from the manger. The school teacher, that modern wise man, whose knowledge of mischievous boys will pardon his suspicions in their direction, strode to the place a moment later, and held to the astonished sight of the people a baby boy wrapped in fragments of its mother's dress. I remembered then the figure at the gate the night before. It was Mattie, and the mill had been her only quiet shelter from the storm. She was cold and insensible now on her bed of straw, but the Providence that centuries before had guided wise men to the infant shrine was potent still, and on this Christmas morning brought ready hands to tend this mother and her new born babe.

The men discussed the affair outside in groups, all but one young athlete who sat by the fire within holding in his arms his fragile wife and surrounded by the admiring women of the town.

When it was proposed to carry her to her parents' home, the more prudent ones suggested that she be taken to the squire's which was next door to the mill, and that dignitary made such choice imperative by humorously placing the new boy under arrest on the charge of disturbing a religious meeting.

It was a happy day in Barnesville. The news went through the county and when night came we illuminated the old mill. The girls and their beaux came to the dance and the little woman lying in the squire's room could hear the rythm of their steps hustling through the reel that made night merry in her honor.

OUR FOREIGN TRADE.

Sixty-four countries are buyers from or sellers of merchandise to the United States. During the last fiscal year the imports of merchandise were $723,180,914; the exports of domestic products, $804,223,632; of foreign merchandise, $19,615,770 were exported. The grand total of the foreign commerce in merchandise was $1,547,020,316. Taking this sum as 100 per cent, it is interesting to review what per cent of the total commerce is with various foreign countries.

Europe is first, with a trade reaching $1,069,580,521, or 69.14 per cent of the total; of the imports 56.65 per cent are to her credit, and in return she absorbs 80.61 per cent of the total exports.

The imports from Great Britain and Ireland constitute 46.4 per cent of the total from all countries. Of domestic exports 52.28 per cent go to the United Kingdom, the amount being 64.85 per cent of the exports to Europe. England's foreign trade with this country, last year, was $509,009,784; that of Scotland, $53,832,281; Ireland, $51,204,728, the group controlling 39.69 per cent of the total foreign commerce of this country.

Traffic with France stands second, it being 10.13 per cent. That country purchases 6.96 per cent of our domestic exports, sending us 13.55 per cent of the imports, or about double the merchandise shipments to that country. The following table exhibits the per cent of trade with other leading countries:

	Per Cent.		Per Cent
Germany	7.98	Spain	1.60
Belgium	3.29	Italy	1.45
Netherlands	2.01	Russia	1.00

The exports to the above named countries, with the exception of Italy, are of greater value than the imports. The exports to Spain are more than double the imports therefrom.

To North American countries belong 15.92 per cent of the total foreign commerce, of which the Dominion of Canada is credited with 5.74; Cuba 5.21; the balance between Mexico (1.60 per cent), British West Indies (1.11 per cent), the remaining 2.26 per cent divided among Central American states and the various islands in the West Indies and off our northeastern coast.

With South America, a trade valued at $106,307,642 was done, of which the imports were $76,736,983, or $47,809,886 greater than the exports. This is a poor showing, and one that should stimulate our merchants to make a better record. Brazil absorbs 50.55 per cent of the commerce of the United States with South America, and which is 3.47 per cent of the total with all foreign countries. The value of exports to that empire are about one-fifth of the value of the imports, while the Unted States of Columbia imports from this country goods valued at 1,548,332 more than the imports to the United States. Mexico bought of us last year $6,193,869 more than she sold.

Asia and Oceanica figure to the extent of 6.66 per cent; Africa, .56 per cent; all other countries, .85 per cent in the grand total of our foreign commerce. With Mexico we have no reciprocity treaty. To the Hawaiian Islands we paid last year in duties remitted, $3,881,791. The foreign commerce with the two countries compares as follows:

	Exports to.	Imports from.
Mexico	$14,379,922	$8,177,123
Hawaiian Islands	3,683,460	8,238,461

Comment is unnecessary upon a foreign policy that creates such an anomaly; that keeps American ships off the high seas; that maintains an inefficient consular service. We hope for better days, when a liberal and uniforn policy will give to the United States a greater proportion of the trade with continental Europe, Asia and South America than is now enjoyed.

A HOLLAND FLOUR MILL.

The steam mill of Nicola Koechlin & Co., at Geestburg, Holland, as originally built in 1855, contained six pairs of stones, driven by a 50-horse power engine; but the increase of trade necessitated an extension of the mill in 1859, when another wing was added, with five pairs of stones. This made eleven stones in all, with which about 900 quarters of grain were ground weekly. On the 8th of January, 1880, a fire totally destroyed the mill. The proprietors decided to rebuild it on a larger scale, and in the beginning of 1881 the new mill, with 20 pairs of stones, was at work, grinding about 1,600 quarters weekly. Some roller mills are now in use also. The length of the mill is 160 feet, width 45 feet, and height 65 feet. Adjoining it are two warehouses, each capable of containing 5,000 quarters of grain; while both sides the buildings touch the water, affording great facilities for unloading cargoes. The mill works chiefly for the home market, but exports, according to its own statement, from from 3,000 to 4,000 tons of offal (bran, pollard, &c.) to the English market annually. It was awarded the gold medal at the Amsterdam exhibition, 1883.

MILLING IN THE UNITED STATES IN 1880.

The last census, that of 1880, gives the following figures regarding the milling industry in the previous year. These are the latest reliable figures extant, though of course their value as indicating the present state of the trade is slight:

	Totals for the United States.
Number of establishments	24,338
Capital	$177,361,878
AVERAGE NUMBER OF HANDS EMPLOYED.	
Males above 16 years	58,259
Females above 15 years	42
Children and youths	126
Wages	$17,422,316
Number of runs of stone	59,612
Daily capacity, bushels	4,730,106
Wheat—bushels, 304,775,737	value, $315,394,386
Other grain—bushels, 234,907,220	" 112,372,071
Value of mill supplies	13,788,768
Total value of all materials	441,545,225
" " " " products	505,185,712

FLOUR AND GRAIN EXPORTS.

The following table exhibits the imports of flour, wheat and corn into the United Kingdom on the dates named.

	Week ending Dec. 15, 1883.	Week ending Dec. 8, 1883	Week ending Dec. 16, 1882.
Flour, bbls.	170,000@175,000	135,000@140,000	165,000@170,000
Wheat, qrs.	120,000@125,000	150,000@155,000	190,000@195,000
Corn, qrs.	105,000@110,000	110,000@115,000	Less than 25,000

The exports from Sept. 1, 1882 to Dec. 14, 1883 were as follows:

To—	Flour, bbls.	Wheat, bus.	Corn, bus.
Great Britain and Ireland	1,822,997	16,386,183	10,079,406
Continent	91,273	5,832,694	2,717,200
S. America, W. I., O. Countries	698,334	39,778	505,600
Totals Sept. 1, 1882, to Dec. 14, 1883	2,612,604	22,258,655	13,299,206
Corresponding time 1881 to 1882	2,512,606	38,626,562	2,180,460

During the milling year ended Sept. 1, 1883, the Minneapolis mills turned out 4,000,463 bbls. of flour, which was the largest annual production, and was 1,099,675 bbls, more than was made in 1881-2. The exports were 1,700,750 bbls., being 1,073,064 bbls. more than for 1881-2 and 519,428 bbls. more than in 1880-1, when the largest previous export was recorded.

A French inventor who has patented a machine for the use of concentrated solar rays as a general motive power, has set up three of his machines in Algeria for the French government. He is now carrying on experiments in France, threshing wheat and raising water by the action of the sun's rays.

Hinkle, Greenleaf & Co.

Humboldt Mill. St. Anthony Mill.

CAPACITY **1,500 BARRELS** PER DAY.

MANUFACTURERS OF THE

HIGHEST POSSIBLE GRADES

FLOUR,

FROM WHEAT ESPECIALLY SELECTED FOR OUR USE.

Our Flour received the Gold Medal at the Paris Exposition over Competitors from all parts of the World.

OUR BRANDS:

Cosmos. Climax. Supreme. Humboldt.
Minnesota Chief. Bonanza.

MINNEAPOLIS, MINN.

D. R. BARBER & SON,

MANUFACTURERS OF

FINE GRADES

Roller Process Flour,

From the Best Quality of Hard Wheat.

BAKERS' BRANDS:
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WHITE SATIN.
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MINNEAPOLIS, MINN.

ROLLER GALAXY MILLS.

Capacity 1,000 Barrels Per Day,

— OF —

The Highest Grades of Flour

FROM HARD SPRING WHEAT.

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ALL FLOUR WARRANTED.

CROCKER, FISK & CO.

MERCHANT MILLERS

Minneapolis, Minn.

OUR MINNEAPOLIS MILL

Has a daily capacity of 1000 barrels, and is the only strictly all roller mill in the city of Minneapolis. We use nothing but the finest selections of Minneapolis and Dakota Hard Wheat, and challenge comparison or competition.

BRANDS:

CROCKER'S BEST,
BEST FANCY FLOUR.

CAPSTONE,
HIGH GRADE FLOUR.

HECLA,
STANDARD BAKERS'.

PAR EXCELLENCE,
HIGH GRADE FLOUR.

CROCKER, FISK & CO.

THE VAN SLYKE FLOUR DRESSING MACHINE.

THE Van Slyke Mill Bolting Co., of 303 and 311 So. Canal St., Chicago, have brought out and perfected a new flour dressing machine and bolting system which they claim possesses many advantages and improvements. The machine is the invention of Mr. J. W. Van Slyke, of Kansas, who is a practical miller of many years' experience.

Herewith we present a cut of the machine (Fig. 1) and a sectional view (Fig. 2.)

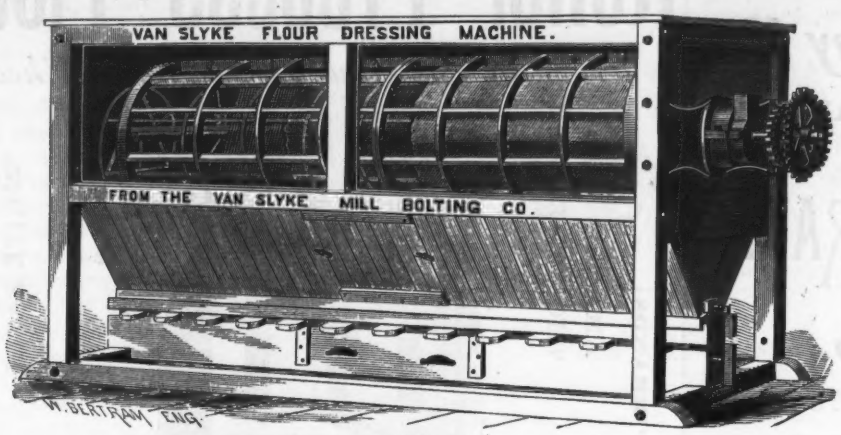


FIG. 1.

In this machine the inside triangular or prismatic reel is used as shown. It is made of coarsely woven wire and is rigidly attached to a cylindrical wire scalper and bolting reel thirty inches in diameter and this in turn is enclosed in a cylindrical silk bolting reel, thirty-six inches in diameter, the prismatic device and wire scalper being arranged to rotate in the same direction with the outer reel, but at a greater rate of speed. Both reels, however, are run at a comparatively low rate of speed, the bolting being done by a continuous, uninterrupted sliding and sifting motion like the operation of a purifier. The cloth is put on the inside of the frame of the reels, consequently there are no ribs or rings or obstacles of any kind to hinder or delay the travel of the stock. The outer reel is made in longitudinal and transverse sections fastened together by thumb screws to be easily adjusted, repaired or taken apart when the machine

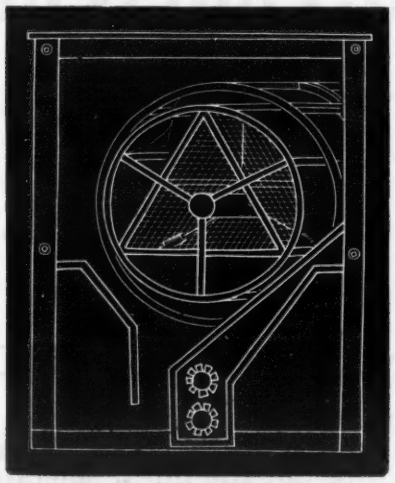


FIG. 2.

is used on soft stock or in place of centrifugals. The meshes of the silk are kept open by an ingenious, but simple ratchet beater which strikes a little casting attached to the edge of the ribs and gives a slight jar; no brush or other device coming in contact with the silk. The meshes of the wire reel are kept open by little iron balls which slide on small iron rods extending from the shaft to the outer frame of the inside reel. The inside reel is clothed with the best heavy tinned wire and only the best Dufour and Dutch Anchor silk are used for the outer reel. The whole machine is constructed of the very best material and in a thoroughly workmanlike manner. There is nothing to get out of repair, it is extremely simple of operation and can require but very little power to drive it, as the outer reel is so adjusted that its weight and motion assist to drive the inner reel. It is provided with double conveyors, with cut-offs every four inches and is so arranged that any desired pitch can be obtained in a moment. The machines are built in seven sizes, from four feet to ten feet long.

Each product is first fed into the triangular device above referred to, the office of which in the first reduction is to break apart the split kernels which are hanging together by the bran, whip out the seam-dirt and germ and by frictional contact take off the fuzz that may be remaining on the end of the berry. The whole product falls through this whipping and disintegrating device immediately upon the concave inner surface of the wire clothed reel through which is bolted whatever flour and middlings that occur, and the seam-dirt, germ and fuzz. The coarser granulations are tailed over and go to their proper places for further reduction. The manufacturers claim many advantages for this arrangement, among which are the fact that all the coarse impurities are scalped off and disposed of as fast as they are made without coming into contact with the silk or falling into a conveyor with the good stock; the silk of the outer reel is always protected from harsh particles or extraneous substances that are sometimes found in grain, and never receive at any reduction the full weight of the chop, lessening almost to a minimum the liability to bag and giving the silk more durability, while its bolting capacity is greatly increased. The bolted product from this wire reel only has a drop of three inches when it falls lightly upon the smooth concave surface of the silk reel which is so clothed as to take off flour and different grades of middlings, tailing over finished stock and sending the germ to its proper place. In the subsequent reduction the prismatic device acts as a disintegrator and knocks off the little specks of red dog that are found clinging to middlings and thoroughly whips the flour from the bran. It is because of this and the further dressing the bran gets over the wire reel that the company claim to be able to dispense with bran dusters. They particularly advocate the use of their machine on low, soft stock, such as centrifugals are usually employed upon and their correspondence shows they are using many of them for this purpose with entire satisfaction. The triangular wire whipper and inside wire bolting reel are speeded somewhat faster on this kind of stock, and by the first named device, it is claimed, the masses are separated and the long, flat middlings broken up. The wire reel which, of course, is clothed for this particular purpose, receives the stock, arrests its fall, scalps off the larger specks and impurities and the balance falls lightly on the silk. There is no possibility of beaters forcing specks through and no blast of air to blow them through.

Messrs. Stout, Mills & Temple, of Dayton, Ohio, have been officially notified by the directors of the Great Southern Exposition at Louisville, Kentucky, that they were awarded the medal for the best roller mills exhibited there.

There is a letter in the Covington, Ky., postoffice, addressed to "Old Boss Santa Claus," and, according to law, the postmaster has advertised for its owner.

THE MILL LIGHT OF THE FUTURE.

Electric lights are sure to supersede all others for mills, factories and machine shops. The great Pillsbury mill at Minneapolis has now for over a year been lighted by electricity, and the cost is proven to be relatively far below that of gas, to say nothing of the vastly increased brilliancy and the greater immunity from fire thus obtained. C. A. Pillsbury states that he has never taken the trouble to secure exact figures on the difference in cost, but has gone far enough to know that there is a wide difference in favor of electricity.

A great point in favor of the eletric light in mills is its coolness. Careful experiments show that the heat from an arc lamp of 100-candle-power is from 57 to 158 heat units; that of the incandescent lamp of equal brilliancy, from 290 to 536. The argand gas burner is the next best light in the point of coolness; but this is represented by 4,860 heat units, a colza oil lamp by 6,800, a flat wick petroleum lamp by 7,200, a paraffine candle by 9,200, and a tallow candle by 9,700. Light for light, therefore, the heat of an electric arc lamp, under the most favorable circumstances, is to the heat of tallow candles as 1 to 170, and to the argand gas burner as 1 to 90.

At a recent meeting of the New England Cotton Manufacturers' Association, Mr. Woodberry read a paper from which we make the following extracts:

"Another matter of value in electric lights is the ability to distinguish tints. The light from the tips of the carbons is white, and the light of the arc between them is bluish-purple, so that the general tint of the arc is that bluish-white which has a very white appearance. Where the use of shades of color is involved, electricity furnishes the only artificial light which can be feasibly used; and in such cases where the operation of a certain department would otherwise be limited to the duration of sunlight, the economy from the use of the electric light is, to a certain extent, proportionate to extra profits accruing from this extension of the time of labor. In other departments of manufacturing, the aid to the production of perfect work, by this improved illumination, is a source of additional revenue, because the proportion of damaged goods usually made when the mill is badly lighted, is thereby diminished."

The above is interesting to millers, as in cotton factories the most delicate of work is done and in many instances with the nicest discrimination as to shades and colors, and which latter work could not be done except in daylight until the introduction of the electric light. This fact suggests that this light would be valuable to millers in inspecting various products. Mr. Woodberry further said:

"It is convenient to compare the cost of electric lighting with the expense of gas in the same place, although it must be remembered that gas does not furnish as much or as good light, and is therefore not so valuable where quality of work is of importance.

"Timothy Merrick, of Holyoke, authorizes me to give the facts respecting his experience with the Edison system in the Merrick Thread Company's mill No. 3. This mill runs all night five nights in the week for 51 weeks per year, using light 2869 hours per annum. It was lighted by 95 burners with city gas, costing $2.13 net, which amounted to $225 per month. Ninety-five Edison B burners (8 candle power) were substituted for the gas. In the first 1,000 hours five lamp carbons had broken, and Oct. 20, they had been in use 1278 hours and 11 had broken. Allowing that the lamps average six months' use (these averaged more than that), the cost of lighting is made up as follows:

190 lamps at $1.00	$190.00
Interest and depreciation	163 00
Six horse power at $10.00	60.00
Annual cost of Edison light	$403.50
Monthly cost Edison light	33.62
Monthly cost gas	225.00"

Other statements in Mr. Woodberry's paper give the cost, as equivalent to gas at from 65 to 90 cents per 1,000. Mr. Kilburn, of New Bedford, said: "So far as we can see, it is cheaper than gas at 50 cents per 1,000."

Van Slyke Flour Dressing Machine

303 TO 311 South Canal Street, CHICAGO, ILL.

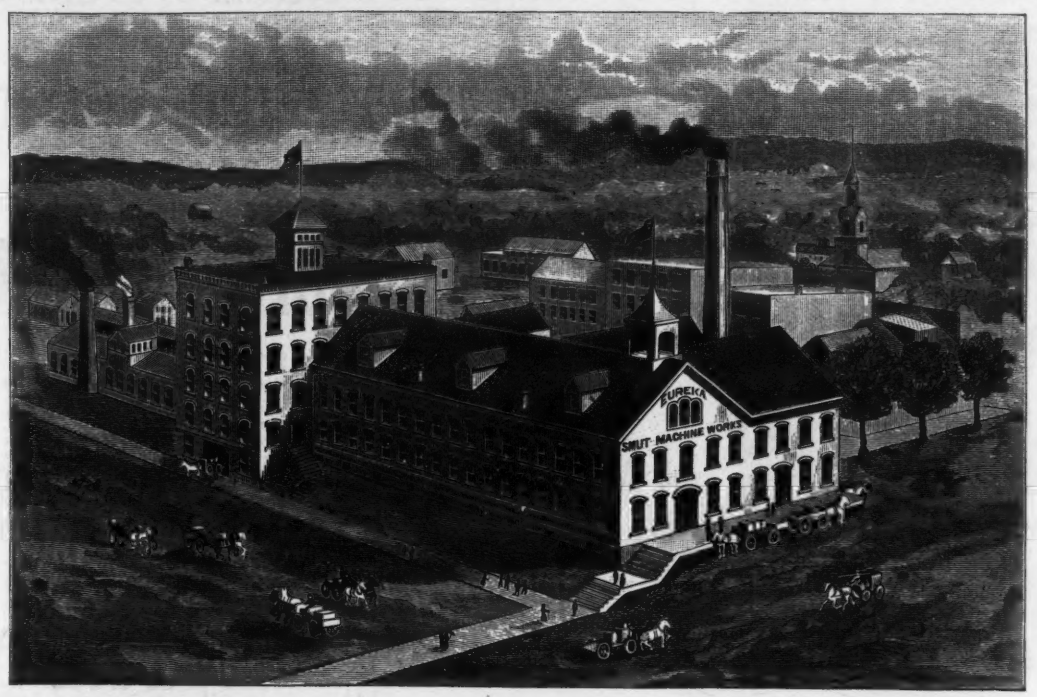
Has conquered the obstacles that have staggered and defeated its would-be-rivals, passed the ordeal of its coronation, and to-day wields the sceptre of **KING OF ALL THE KINGS** of Flour Bolting Machines. Coarse impurities are scalped off and disposed of as fast as they are made in the same operation, with the bolting, and without coming in contact with the silk, preserving and protecting the latter, increasing the capacity of the Purifiers and getting a better justification with less blast of air, thereby reducing the dust-room stock. It will produce more complete results on soft stock than any Centrifugal in existence. It is adapted to all systems of milling and to mills of any capacity. When used as a system it dispenses with **Scalpers, Centrifugals, Bran-Dusters and Dusting Reels,** saves elevators, conveyors, shatts, gears, pulleys, belts and spouts; requires not more than one-half the room or one-third the power and produces better results than can be obtained by any other system. Descriptive circulars, price lists, &c., sent on application. Correspondence solicited and all enquiries cheerfully answered. Estimates and plans of system for mills of any capacity furnished.

VAN SLYKE MILL BOLTING CO,

DEALERS IN GENERAL MILL MACHINEY,

808 to 811 SOUTH CANAL STREET, CHICAGO, ILLINOIS.

LONDON OFFICE: 16 *Mark Lane, London, E. C.*



CABLE ADDRESS: *HOWES, Silver Creek, N. Y.*

THE EUREKA SMUT AND SEPARATING MACHINE; THE EUREKA BRUSH FINISHING MACHINE; THE EUREKA MILLING SEPARATOR; THE EUREKA WAREHOUSE SEPARATOR; THE EUREKA RECEIVING SEPARATOR; THE EUREKA SCREENINGS SEPARATOR; THE EUREKA AUTOMATIC MAGNETIC SEPARATOR; THE SILVER CREEK FLOUR PACKER. Manufactured by

HOWES & EWELL,

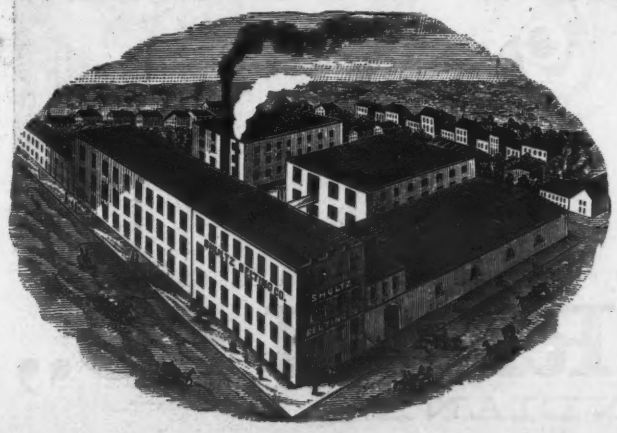
SILVER CREEK, N. Y.,

Dealers in BOLTING CLOTHS AND MILL FURNISHINGS GENERALLY.

The quality of material used in the manufacture of these Machines is unsurpassed, and the manner in which they are manufactured is first-class in every particular.

A. J. SHULTZ, President. B. C. ALVORD, Secretary.

SHULTZ BELTING COMPANY,



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Shultz Patent Fulled Leather Belting, Lace and Picker Leather.

Our BELTING is made of Leather, tanned on the surfaces only; the interior (which is the fiber and strength of the hide) is not tanned, but rawhide fulled and softened by our patent process. Our belting is more pliable, and hugs the pulley better and transmits more power than any other belt. It does not pull out at the lace holes or rivets. It stretches less than any other belt. It works equally well for the largest driving belts or for the fastest running machinery and smallest pulleys. Our LACE LEATHER is made of rawhide, by our patent process, without any tanning, and is stronger and will wear better than any other. We also make the best Picker Leather and Belt Grease in the country. Satisfaction guaranteed. Specifications of railroad companies solicited.

Cor. BISMARCK and BARTON STREETS, ST. LOUIS.

Agents in all cities. JANNEY, BROOKS & CO., agents, Minneapolis. CURTIS & CO., Mfg. Co. agents, Chicago.

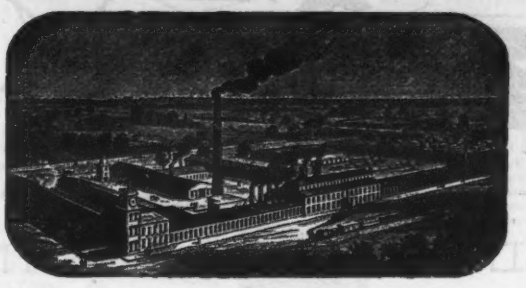
NORDYKE & MARMON WORKS,

ESTABLISHED 1851.

We are builders from the Raw Material of

Roller Mills

CENTRIFUGAL REELS,



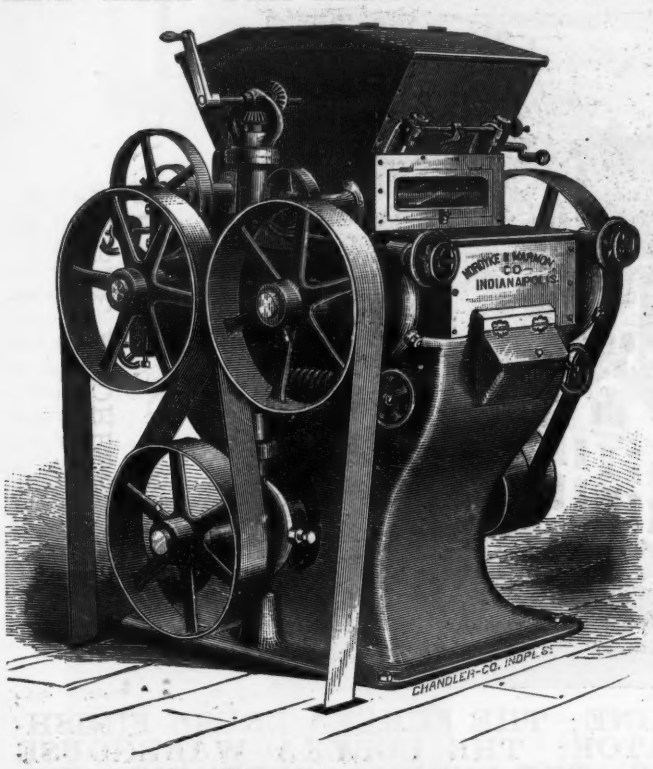
ALL STOCK YARD STREET CARS PASS OUR WORKS.

Flour Bolts, Scalping Reels, Aspirators,

Millstones

PORTABLE MILLS,

AND KEEP THE LARGEST STOCK OF ALL KINDS OF MILL SUPPLIES IN THE U. S.



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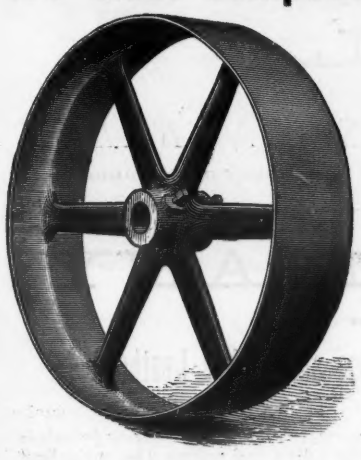
Mill Builders AND Contractors.

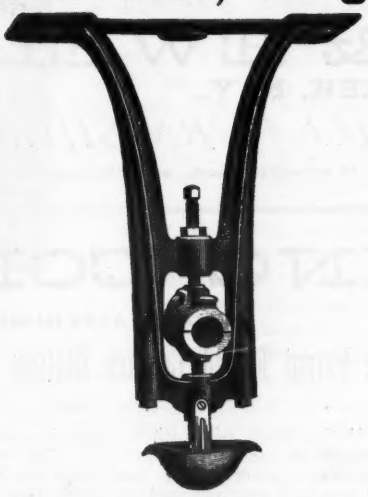
GUARANTEE RESULTS!

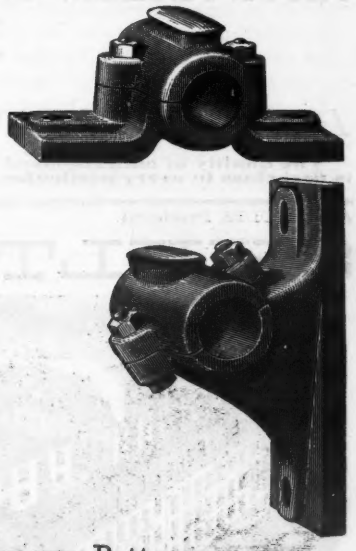
Motive Power and Entire Equipment of a Modern Mill Furnished under one Contract.

Our Shafting, Pulley & Gear Department

We meet Competition in Prices, and give you the Best Goods on the Market.







Send for New Price and Weight List of over 3,000 Pulleys and Gears of our own Patterns.

NORDYKE & MARMON CO.,

INDIANAPOLIS, INDIANA.

THE HISTORY OF A MILLING EXPERIENCE

THE TRUE STORY OF A BUSY LIFE.

I WAS nearly 21 years of age when the cry of "Go West" found lodgment in my mind. There was no particular motive in it at that time, as far as I was concerned. I could not hope to find pleasanter surroundings than those which I had in the old home. But really I did not think of this. There is a feature common to all men which leads them to look for better things farther on. There is always better hunting ground a few miles in advance. In fishing we always throw our line as far as we can from the boat or the shore. We always look for brighter and better things in that which is remote—in the future; and it is well that it is so; it makes the present happier. As I said before, I was nearly 21 years of age, and as I think of it now, my life previous to that time had been a singularly good one. I had gone to school and studied well and learned fast. I had worked with my father in the mill and enjoyed it, and it was a source of satisfaction to him that I always saved the larger part of the wages which he paid to stimulate me. As I remember it now, I had no particular fondness for the money, but rather had no inclination to spend it. About the time of which I speak, an old aunt died and showed her appreciation of her nephew by leaving to him a snug little sum of money, a sum which represented years of toil of herself and husband in one of the upper counties of New York state, where I then lived. The possession of this money, or the knowledge that it was to be mine in a few months, wrought as great a change in me as ever did the enchanting methods of the days of the Arabian Nights. It was a transformation. I opened my eyes to see everything differently from what I had ever seen before. My manner changed toward every one. I took particular pains to collect, in so far as it was possible, the little sums of money which I had loaned to my acquaintances. I made quiet inquiries as to the condition of the bank where my savings had been deposited, something which had never occurred to me before. There had come to my mind a quiet, fixed determination to become a rich man. My aunt's legacy had developed this feeling. There was no more doubt in my mind as to the results of my future efforts than there now is of the fact of my having a pain in my hand as I write these lines. I did not picture the method, but I saw the results. I knew that I had a good average education, a strong mind and active body, a rugged experience, the will, the ambition, and I saw success standing out before me. Success in my mind meant accumulation. If I had received another start in a different direction, if circumstances had led me to look for or seek literary fame, or distinction at the bar, I have no doubt I would have reached it. If that had been my idea of success, I feel that I would have been successful. Shortly after my twenty-first birthday, with all things arranged for the use of my money, I started west with a cool, ambitious head on my shoulders. The idea of doing a mean or dishonest thing was as far removed from my mind at that time as the idea of poverty. I stopped at several places, didn't see what I wanted, felt a little disappointed at what I saw in the west, and finally decided that I was too far west, and made up my mind that I would try middle ground.

Having worked in a mill, and knowing more about that than anything else, I was frequently attracted in that direction. I saw that they were all inferior to the one which my father owned, and finally came to the conclusion that if I could find some suitable place in Ohio, say, where there were a good many farmers, and a prospect for more, that I might put my past experience to profitable use, and invest my money safely. This was in 1858, and on that basis I made a selection. This was a good deal for a young man in those days, and who was barely of age, to undertake, and I had my age against me as to the matter of success. I restrained all boyish maneuvers and gave rather a vigorous growth of beard full sway.

Now, as to building the mill. I knew that there was a millwright in our neighborhood who had built most of my father's mill and knew all about it. I sent for him. In the meanwhile I said nothing to the people of the village of A——ville (which for a blind I will say was located in Ohio,) about my intentions as to the building of a flour mill.

There was one saw mill in this village, the site and water power of which were very excellent, and I wanted it. With this in view, I all but closed a contract for a piece of ground a little above the envied site. This made its owner very restive and nervous. He said to me that a saw mill did not pay any way—that I had better keep out of it. "No," I said, "I am going to build a mill, and if something doesn't happen, I will locate on Mr. Jones' property, just above you." He then talked about selling his mill to me, but I told him that I did not want it, that I would prefer to take a fresh start. This gave saw mill property quite a drop in his mind. A few days after this my millwright arrived; he was a pretty keen old fellow. During the evening we took a little walk outside the village. I told him that I wanted the saw mill property and what I had done; and we soon fixed it up so that he would go to its owner with a view of making a better bargain than I could have done. This was readily accomplished, and the deed to the property made out to me. This transaction made a little talk, but it soon blew over in the interest and gossip about the new flour mill which was to be built. We used the saw mill to get out the timbers for our building, and after this was done left enough of it so that we could use it if necessary in the future. I hired a large force of men and drove the thing along, buying everything carefully, and in the course of time, as things went together, I occupied myself more largely than my boss millwright thought necessary—though he did not so express himself—in showing the people of the town and surrounding country the peculiar excellence of everything which was going into the mill. I did this thing quietly, and without being boisterous or enthusiastic. I worked for an impression with the community. I made it. The impression was so good, in fact, that I was able to go to the bank and borrow money to do business on. It was a ground hog case. I was running pretty short, and would have swamped but for this policy.

Finally the time came for starting the mill. I had one of my father's old millers, and by exercising great care we were able to start without the usual number of annoyances. We had a few, of course, but altogether it was a good start. But the gossip we had to meet required a little effort and a little tact. Some of the farmers would say, "oh, yes, things look pretty nice; there are a good many new fangled notions, but that isn't what makes good flour. I guess old Johnny Watkins' mill is the best after all. I'd rather trust my grist with him, because I know it will come out all right or good enough—that I'll get what I put in." Johnny Watkins had circulated a report something like this: that one of his boys had seen a man who worked in my mill and that the buhrs were dressed so as to make white flour, but that when you came to bake it, it would be dead and would not rise. Now all these things had their effect, and I will say now that it is a fact worthy of recognition that no man is without his influence, and no story is so absurd but that it carries weight in all directions. Now I had known that the mill would not make as good flour at first as after being run a short time, and I also knew that a great many people whom I had interested in the mill would want to try the first flour. I knew that the interest I had excited would make them all the more critical as to results, and that if I lost my prestige at this juncture, it would take a long time to regain it. But as my funds were low, I could not afford to risk anything of this kind. I could not afford to let the people have the first flour that I made. On the other hand I did not want the people to know this. I went down to Cincinnati and purchased about fifty barrels of flour of unquestioned quality. This I had put into sacks, and with other supplies it was shipped to our village. The miller, who was a trusty fellow, attended to the unloading of this flour and its transfer to the mill, and one evening we quietly emptied a quantity of it into the flour chests of the first flour. The millwrights and laborers were now about through and I hired a new helper, so that our plan would not get abroad. This flour was of good quality, but no better than we expected to make in the future. It was of about the same quality as that made by my father's mill in York state, of which we had made an exact copy in building. Thus I felt sure of myself. Thus we got things to moving nicely. People came to the mill for flour. We gave them something which we knew would please. I sent to my banker that which was presumably the first grinding, and many of the prominent people of the vicinity made purchases in small quantities. Some of the older men were rather conservative and did not care to say anything which would antagonize their wealthy neighbor, Johnny Watkins, but the women folks scattered the news, and the less conservative people were enthusiastic. I had worked the thing up to a climax, and the whole thing was quietly but forcibly dramatic. I had laid out a scheme which would either prove a very flat failure or a very good success, but I could have hoped for nothing better. One of the wealthiest and best business men of the county came to me and intimated that he would like to put some of his money into the concern, that is, as a partner, but I had what appeared to be a success, and I did not need his money, at least would not let him think so. In the course of a week our flour was good enough to put on the market. We had been putting some of it out in places where it could not hurt us, though we were reasonably sure of the quality for several days. The other we shipped to Cincinnati.

PART II.

As I look back upon the events of those times, everything looks propitious and agreeable. But an accurate inspection, a careful examination would reveal a great many troubles and annoyances, a great many things which were worrisome and vexatious. They were just such things as everyone has to meet, experiences which took time, energy and tact to work around.

It is the tendency of a natural, healthy mind to forget the troubles and annoyances of experience. The greatest troubles which we have, gradually grow less and less, and if our years leave us with a healthy body and a healthy mind, we look back upon the clean record of an experience. That is why grown people say that young people have such a happy time, and so much more so than they who are older. They have forgotten the annoyances of childhood. A boy or a girl in going to school has as much trouble and as much care in proportion to his or her strength to bear and to do with it, as in later years. To-day we can sit and laugh at the experiences which gave us severe mental pain in the past. We are positively amused at the things which caused us days and weeks of restlessness and anxiety. This trait of character, this happy formation of the human mind, is illustrated in our estimate of others. Time softens and levels the rough and disagreeable traits of those with whom we have had to do. We are ready to build a monument to a political enemy, a man in whom we could see no good, a few years after he is dead. Prejudice is removed from our judgment, and we see only the good that there was in the one to be honored.

In starting this mill, in disposing of its product, I had as many annoyances to contend with and as hard work to do as do millers or other business men who are engaged in the same line of work to-day. I had invested all of my money and more besides. I was seriously in debt, was in a country new to me, without experience and without friends. To be sure there were those who felt friendly toward me, but I was new to them and they were new to me. There was no feeling of friendship on either side but that could easily have been disturbed. I had worked things up to a point where a great deal was expected of me. I was decidedly fresh, and as I look back now, I all but tremble at what might have happened. We have to have knowledge and experience before we know what fear means. There is nothing which is apparently so bold as ignorance. Now if the record of this experience appears to yield nothing but success, and relates too many bright things in succession, I would not have the reader think that it was only pleasant things which fell to my lot. It merely means that I have forgotten the rest—it means that the only place in my memory is the thing for which I sought—that is, the bright fea-

ture of business success. Now I know that a great many people would not call my life a success, but the result will show that I got what I started out for, and I have it with me. My methods have been questioned, in that they benefited me in the discomfiture of others. There are those who cannot be blamed for judging me in this way. I started out with a purpose, with a determination to keep within the bounds of all the laws which men had framed for their own protection. It is our right and our privilege to make those laws, and when we do not make them, as I see it, it is because there is no need of protection. Inside of this limit I think it is all fair business. I always had the utmost respect for the law, never tried to dodge it, or get around it. No man ever lived who can justly say that I ever refused to pay one cent less than my agreement would justify—that I ever gave short weights or took long ones, or anything of that kind—but it always has been my principle to buy as cheaply as possible, and pay for everything I got, and then sell for the best price, and be sure of the returns. The grinding of that mill was usually a pleasant song to my ears. It was the accompaniment, the music to my business. It was the pleasantest song and made up of the richest tunes, when business was the best, but a little research still calls to my mind when its tones were fretful, tedious and nervous, when they recalled again and again, almost at every revolution the fact that this product was unsold, or was being made out of high-priced wheat. The days before I went to bank to ask the first renewal of my note were the times when the clacking of the pick or the hum of the machinery were sounds of the most dismal kind, when they were discordant and troublesome; but after I returned from bank, where I had been received so kindly and with such pleasant inquiries as to my business, the whole thing was changed. As I walked through the mill, and up the stairs, I viewed everything with renewed pride and it sang a brighter and more cheerful song, one full of more hope and pleasant anticipations than I have ever experienced since.

There is no use reciting the humdrum of business details, as that would make a dull story—one as dull to read as it would be to write. My custom work and exchange business began to grow from the first. It was slow, but constant. Those who came to me as new customers frequently came with an apology for patronizing me, often saying in effect that they only brought their grist to me because it was inconvenient or a little out of the way to take it to their old friend Watkins. Again it was through curiosity to see the mill; or, they were just passing and thought they would drop in a little grist. But almost to a man they made excuses for having anything to do with me. Old Mr. Watkins said he would give me six months to break up and go home, that he couldn't make any money out of the business, and that if he couldn't with his years and experience, he knew that I, who was without these advantages, could not. But the old gentleman was quite wealthy, just the same, and his argument did not discourage me. I was very particular as to quantity and quality of the flour which I gave to my farmer customers, and I noticed that the next grist which they brought would be larger in size and that they made no excuses for their patronage. Their wives were the best friends that I had, and they broke the news to the neighborhood, and there was a steady advance on me. Now, I had expected that the superiority of my work would be recognized almost at once, but that is a general idea which I soon learned to set aside. If I had made flour any amount better than that of my neighbor miller, and had given grists which were enough larger than his to make a decided difference in price, and favorable to my goods, even then the mind of the people with whom I was doing business was so organized that I would not have realized what I might have led myself to expect. There is a feeling for the old, for that which has been tried, a feeling which is sometimes called conservatism, which will not be readily influenced by anything but time. Cost and quality must wait like virtue for their reward. But like everything else, it is a question of time, and will eventually make itself felt.

I made large use of my personal influence over my customers. I learned their names, and those of their children. I commented on their horses and wagons, not boisterously or affectedly, but in a quiet way which was less liable to misinterpretation, because it was an interest which I did feel, having a disposition which could readily sympathize with those who were liable to benfit me through such sympathy.

During all the time that I had been building and starting the mill I never had taken much interest in the society of the town. I had gone to church occasionally, but most of my time had been put in at work. It did not take me long to find out that the most influential people of the community were regular attendants at church, and to express it boldly, to show my feelings exactly as they existed, which is the purpose of this narrative, I decided to become a regular attendant of the Methodist church, which is always the most powerful religious organization in a new country, and frequently for a good while after the newness wears off. I was conscious of the impression which my regularity in church going made. It brought me in social contact with the people whom I wished to meet. I received a dozen invitations to suppers or Sunday dinners where I had received one before. I never talked business at these times, though I confess business was in my mind. Once in a while I would let some little thing drop, the impression of which I could not fail to realize. I remember at one time when I was in the principal general store of the town that I was introduced to a merchant from a neighboring city as the owner of the best and most prosperous mill in that part of the state. Notwithstanding the fact that there are a number of such mills in every part of a state, it showed this man's feeling. They talked me over favorably while I was in the back end of the store buying a piece of rope, as I could tell by the quality of their remarks to me as I passed. My business was moving along as nicely and profitably as I could wish for, within a year from the starting of the mill. I was still cultivating a quiet, sincere disposition; to be sure I had a great deal to say on general topics, but it was said in a quiet, nerveless way, and devoid of that enthusiasm which so often provokes distrust from old and successful business people. I had their confidence, and not without reason. I came into the community and showed just enough shrewdness, which, when coupled with my punctual business methods, the quality of my goods and the indications of a prosperous business, could do nothing else than command respect.

In three years from the time I began I had a little over and above my plant. This was not making money as fast as has been known of during the last ten years, but it was doing very well for those times. I had grown more and more fond of accumulation and I had heard the remark made many times that money made people hard and soulless. I did not pay much attention to the expressions at the time, and do not believe them now. I have seen money lift a man up out of a dirty barnyard and his family from a house which was none too well kept, and place him in an office with beautiful appointments and them in a house beautiful and well kept, and with manners and conduct well suited to the splendid surroundings. I have known money to lift a man from poker parties in hay lofts on Sundays, and the girl whom he married from back-kitchen gossips, and give to them dispositions far above their original station, and children with all the refinement and good manners possible from the best education, and what is called the best society. Men who in former years were without money had very few opinions and few creditable ideas, but the process of accumulating wealth has changed all this and they stand out as autocrats. As I see it, money does not harden or belittle people in their minds or dispositions. The business methods which accumulate are those which educate and enlarge. A business man never looks at the world through a pin hole. His years of experience mean years of enlargement, and as years roll on we find him genial and pleasant, pretty close at a bargain, but a philosopher withal.

PART III.

As time went on, the business focus of my eye received a finer and finer adjustment, and as it became solider and firmer, and as I passed from the stage of dependence to independence, I began to adjust my vision for a wife. I did not intend to marry for money alone. I expected to love the woman with whom I was to live, but I was very sure that I could love her as least as well if she had a snug fortune or the prospect of such. There were deficiencies which money could not have patched up. A homely woman was out of the question, and a sour tempered one out of the market. I never had made any particular advances toward the young ladies of the community. I was more a favorite with the old folks, sought them more. The young people held me off. I never could approach too closely without that approach being regarded as an affectation which made it difficult for me to be regarded as part and parcel with them. I had looked, as I said, to the older people during the time past for whatever social gratifications I cared to expect, and as a fulfillment of my purpose, it was what I wanted. More than once I had felt a broad, flat, patronizing palm on my shoulder, accompanied by the suggestion, "Young man, you ought to spruce up and get out with the girls and boys. You are getting entirely too old for your years." Some of my married lady friends had said smilingly and teasingly in effect that I was the model upon which old bachelors were built. I made many vows that I would now try to be more of a boy, go with the people of my years, and thus get rid of that dried up feeling which was beginning to get a hold on me. But it was so much easier to be the other thing, so much easier to be dry and self-contained that I never got much further than the resolve to reform my ways. My walk got to be precise and stiff and my manner very exact and dignified, and all from a preconceived idea and self-determination. It was a habit—the same as any other personal habit.

I had come to the place where I had some money to loan on mortgages. I left a pretty wide margin for securities, and, in modern language, I had taken a few of them in. I assumed quite naturally that air of injured innocence which is so much a part of those who are compelled to foreclose mortgages. They do it in such an injured way, they make the creditor feel as though he who had loaned the money was the injured one and had every thing to suffer. As I said, I took to this naturally.

One evening I called to see one of my acquaintances to seek consolation and to condole with him in regard to this matter of foreclosures. I was feeling very badly indeed. I had just taken in a nice little piece of town property which was bringing in a nice income, and for about one half its value. I had just written a letter expressing my regrets. This acquaintance with whom I was comparing experience was one of the principal lawyers of the county, and had followed up this sort of thing all his life, and was very wealthy, but could almost pump up the tears whenever he had to foreclose on a nice piece of property, and he called for sympathy from all his dear friends. After some little conversation on this mournful subject, one which made us look upon each other as injured saints, the old gentleman began to unfold himself in a way that he was fond of doing to me in regard to his business history and incidentally his wealth. Such men do not talk about this sort of thing publicly, but they like to get with those of their kind and hold themselves up. He had been particularly confidential this evening, and had surprised me, in his own sly way, by the large exhibit which the recital of his business career made. He was wealthy, but much more so than I had supposed. I, who had been building on the conservative plan, had undershot the mark. As I walked out into the front porch, I saw sitting there alone, in the cool of the summer evening his beautiful daughter. I thought that I had never seen her look so young and beautiful, really the most charming little lady whom I had ever met; and I conld not restrain myself from filling out a very pleasant evening in her company. I thought that I had never seen any one so accomplished, with such splendid manners, such a refined air and it struck me at once that I loved her. It has occurred to me many times since that it was very strange that I never

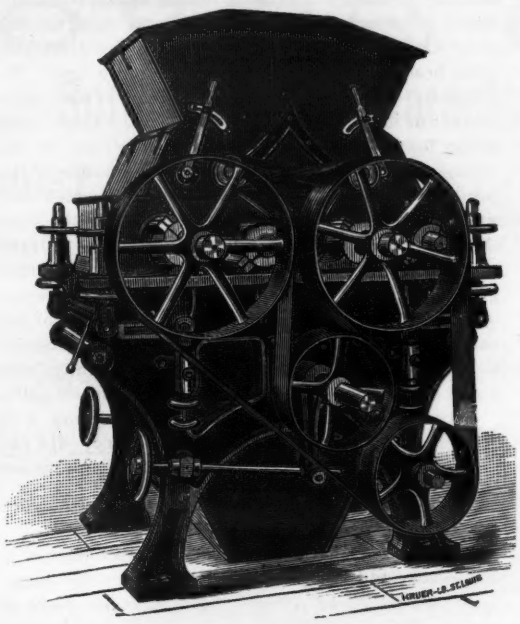
READ THE TESTIMONY OF THOSE USING

THE CELEBRATED "CRANSON-DAWSON" ROLLS,

MANUFACTURED BY THE

DOWNTON MF'G CO

ST. LOUIS



OFFICE CHAS. H. SEYBT, HIGHLAND, ILL., Nov. 16, 1883.

DOWNTON MFG. CO., St. Louis, Mo.:

Gentlemen:—We are slow in giving testimonials, but shall answer your call by return mail and with genuine pleasure. About two years ago you contracted to remodel our old style buhr mill into a modern mill. You have fulfilled the stipulations of the contract as to time and cost, but you have surpassed them as to quality of flour and mill feed. We have been running the new mill for one year and a half. We are to-day fully satisfied with all the work; our flour during this time has given universal satisfaction; our bran is as broad and clean as any in the market; our ship stuff hard to sell; our low grade flour brings five francs more in the continental market than formerly; our clear flour sells in Europe right along side with straight grades from other mills at same prices, and our Patent competes with all the "rest of mankind." Your "Cranson-Dawson" Rolls in our estimation stand unrivaled for the manufacture of middlings: there is nothing comes up to them, nor can any one beat you in fixing over old concerns into first-class modern mills. You have a wonderful head for that, if it is as bald as a pumpkin. Success to you.

Truly yours,

HENRY HERMANN & CO.

OFFICE E. O. STANARD & CO., ST. LOUIS, Dec. 8, 1883.

DOWNTON MFG. CO., St. Louis, Mo.:

Gentlemen:—It gives us pleasure to add our commendation, as we do most heartily, to whatever of good has been said relative to the working of your rolls and the results produced. We refer both to the "Cranson-Dawson" Corrugated and the "Downton" Smooth Rolls. We are using both extensively and do not hesitate to say we believe they have no superior if they are equaled by any. Your work in remodeling our mills was satisfactory in every way and we cheerfully say, "refer any one to us."

Yours very truly,

E. O. STANARD & CO.

OFFICE "CARLYLE CITY" MILLS, CARLYLE, ILL., Nov. 18. 1883.

DOWNTON MFG. CO., St. Louis, Mo.:

Gentlemen:—Your letter asking how we are pleased with the "Cranson-Dawson" Corrugated, "Downton" Smooth Rolls and the roller system of milling, duly received. In reply will say that after visiting the mills of Minneapolis, Minn., and some of the best mills in Michigan and other sections by one of our firm and our head miller, Mr. O. M. Friend, we became fully satisfied that your rolls were far superior to any made, consequently we put them in our mills and after running them two and a half years are happy to say that we are still of the same opinion.

Very truly yours,

J. M. STEWART & CO.

OFFICE KEHLOR BROTHERS, "LACLEDE" AND "EDWARDSVILLE" MILLS, ST. LOUIS, Dec. 3, 1883.

DOWNTON MFG. CO., St. Louis, Mo.:

Gentlemen:—We are pleased to add our endorsement to the general satisfaction that we understand your rolls are giving to the milling public. No better expression of our satisfaction can be extended to you, than the fact we are continually ordering them and replacing any others that we take out of our mills, by putting yours in.

Yours very truly,

KEHLOR BROTHERS.

THE "Cranson-Dawson" Roller Mill, with its latest improvements, is the very best roller mill in the world. The driving belt on the fast rolls and the belt on the slow rolls are capable of being tightened separately. The value of this arrangement, all millers will readily see. The differential is positive; the machine is noiseless; it is strong; it is durable; it is handsome, and it does better work than any roller mill made. Of this fact many of the leading millers are aware, as the flour made by mills using these rolls, ranks the highest in the markets.

During the past two years we have built and remodeled a large number of mills, both of large and small capacity, and one of the secrets of our success has been from these rolls doing superior work. The following are a few of the mills we have built and remodeled:

	CAPACITY.
New Atlantic Roller Mill, St. Louis....	800 Bbls.
Planet Mill, Litchfield, Ill.....	2000 "
H. C. Cole & Co., Chester, Ill.....	500 "
Geo. P. Plant Milling Co., New Roller Mill, St. Louis.....	800 "
Sawyer & McCracken, Nashville, Ill....	400 "
Joseph & Anderson, Montgomery, Ala..	400 "
E. O. Stanard & Co., Alton, Ill.....	600 "
Jno. Gregg, Manchester, Mo.....	250 "
C. P. Chapman & Co., Pittsfield, Ill....	400 "
Jno. T. Antes & Co., Sedalia, Mo.....	300 "
Monmouth Merchant Mill, Monmouth, Ill.....	250 "
Crown Mill Co., Belleville, Ill.....	600 "
J. F. Schwegman & Co, Washington, Mo.	300 "
Henry Hermann & Co., Highland, Ill..	500 "

And Others.

MILL OWNERS contemplating changing or remodeling, or erecting new mills, will consult their own interest by noting the following facts:

1st. Parties ordering from us will have the benefit of the advice and services of our MR. DOWNTON, who was the first to advocate rolls, and has made roller milling a study for years, and mastered it in all its details.

2d. We use only the rolls made by the celebrated J. Morton Poole Co., Wilmington, Delaware—generally conceded to be the most efficient and durable rolls manufactured.

3d. Our rolls are made of the *hardest chilled iron*, especially intended for durability; the frames and bearings are strong and finished in the neatest style, with all late improvements.

4th. Our frames are very simple, and at the same time as near perfection as it is possible to make machinery.

5th. We use the celebrated Phosphor-Bronze metal on our bearings; this is the best metal in the world for that purpose.

6th. Our new device for tightening belts on countershaft, greatly increases the convenience of operating the machine.

7th. By the use of the "Cranson-Dawson" rolls, more middlings and cleaner bran are produced than by any other corrugation.

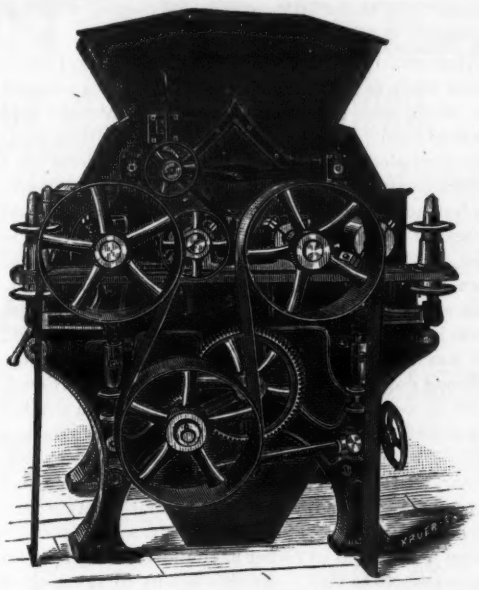
8th. Machines can be furnished on short notice.

Plans and Specifications prepared. Mills built, changed and remodeled. Correspondence solicited.

Send for illustrated price list and catalogue to

DOWNTON MANFG. CO.,

ST. LOUIS, MO.



OFFICE "HOME ROLLER" MILLS, BEARDSTOWN, ILL., Nov. 20, 1883.

DOWNTON MFG. CO., St. Louis, Mo.:

Gentlemen:—Your favor of 15th inst, is at hand and in reply will say that we are not good hands at writing letters for publication, but will authorize you to write up the strongest letter you can and we will endorse it, because we are well pleased with your "Cranson-Dawson" Corrugated and "Downton" Smooth Rolls. We are doing splendid work with them and are making money, so you see we are happy.

Yours very respectfully,

J. BANJAN & CO.

OFFICE ATLANTIC MILLING CO., ST. LOUIS, Dec. 8, 1883.

DOWNTON MFG. CO., St. Louis, Mo.:

Gentlemen:—I desire to convey to you after a full year's trial of the machinery and system you put in the Atlantic Mill, my full endorsement of your *whole system*. I have not had a single reason to complain, and I doubt if any mill of the size of ours, ever started, that in less than ten hours after steam was up ran to the satisfaction of its owners as ours did; and in which so few changes were made after its completion. Shall be glad to admit any enquiring millers, at your request, to examine the *clean* and almost perfect work we are doing. * * Learning "on change" to-day that you were getting up certificates from parties for whom you have done work, I send you this by my office boy to save your "buzzing" me.

Truly yours,

GEORGE BAIN, President.

OFFICE SAWYER & MCCRACKEN, NASHVILLE, ILL., Nov. 17, 1883.

DOWNTON MFG. Co., St. Louis, Mo.:

Gentlemen;—You will please accept our many thanks for the success we have had in milling this year. You will remember us telling you when we spoke to you about changing our mill to a roller mill, that we had spent over one hundred thousand dollars trying to get the best mill in Illinois and were still behind (that we did not propose to suck the hind teat.) That we had carefully examined the different roller systems and had come to the conclusion that the Downton system was the best. That we wanted you to make us such a mill as we wanted, regardless of cost, which you did. We have been running it now six months, day and night, making about four hundred barrels per day. We are well satisfied; would not exchange it for any other system we have ever seen. We hope your future success may be as good as our mill.

Respectfully yours, with kindest regards,

SAWYER & MCCRACKEN.

OFFICE OF C. EISENMAYER, SUMMERFIELD, ILL., Nov. 16, 1883.

DOWNTON MFG. CO., St. Louis, Mo.:

Gentlemen:—Your favor of the 15th inst., is at hand. The "Cranson-Dawson" Rolls we purchased from you are the best rolls we ever used. We have seen the work of a great many. None can equal your rolls, as they make more middlings and larger bran than any other kind we have seen; in short they cannot be equaled by any other. To show the difference in bran, other mills can load from 25 to 32,000 pounds bran into common sized cars, when we have hard work to get 21,000 pounds in same cars.

Yours truly,

C. EISENMAYER.

saw any of this before. It appeared like a revelation to me. I was enthused, and as I remember it, my conversation was brighter more natural, more like the young man who used to live in York state than it had been before.

I was very attentive, and before we had made an engagement the town had announced it. But as it often does, it turned out that our neighbors realized the true condition of things before we did, and we really were engaged, and soon after married, and the old gentleman came down handsomely with a substantial wedding present; and I loved her more ecstatically than ever.

In the course of our wedding journey, I went to the old home, which I had visited none too often, and there took a little time to renew old attachments. The experience of the past few months in the realization of so many of my hopes, and in the exercise of my social qualities which my courtship had developed, changed my manners to some extent. I was less reserved about general matters, more spirited, and yet more intent on accumulation. But my success, as I saw it, gave me a more buoyant, bold, autocratic air, and as I stilted around home, I had very little difficulty in making several of my old friends turn up their noses at me, and a little more in developing a feeling of respect in others.

After returning to the mill and my business, I drove things along with a strong hand. My return marked the tenth anniversary of my original entrance into the community. The mortgage and the milling business went along hand in hand, and as time went on I set more value on what I liked to call my private banking business than on the regular milling work. I had increased my milling facilities a little from time to time, but not largely; but in the aggregate there had been considerable change. I still pursued the same plan of inviting the approval of my neighbors, though I was in a position to do it in a bolder way. I could tell some of my more intimate friends just what the mill was doing in the way of business. All this developed the consciousness in me that there was a number of people in the community who would like to take a bite. I had been taking a trip east two or three times a year, frequently taking my wife with me. We had imported a good many of the more fashionable customs into our household arrangement, and to such an extent as to make us rather uncomfortable citizens for our neighbors to visit. All this set us to thinking of transferring our interests to New York. This had been the growth of nearly ten years of our married life, and in the meantime I had added very materially to my fortune. My desire to go to New York city took decided form about a year before I was able to carry it out. About this time I fixed the mill up a little, drove the business for all it was worth, and turned it into a stock company, allowing some of my friends to take stock. A great many people had it foolishly in their minds that because I had made money largely while running that mill, that it was responsible for my fortune. This made them hanker for an interest. Therefore, it will be seen that there was no great difficulty in quietly selling out all my stock. In the goodness of my heart I let a commission merchant of Baltimore have the last $10,000 which I owned. My transfers were made so quietly, so confidentially—as a favor to my friends, be it known—that I was out of the business almost before the original incorporators knew what was going on. This made a decided disturbance, but could not hurt me. I received a good price for my mill property, and had been selling my farm and city property from time to time during my whole business experience. It was a kind of a trading process. I was buying and selling all the time. Yet it was several years after I came to New York before I had thus entirely wound up my Ohio business. As I am now situated, I have a little money in government bonds, a little more in railroad stock and bonds, and considerable loaned on call. I am in a position where I can make some of my acquaintances feel as though they had been struck by a sledge hammer when I put my hand on their shoulders. I can feel, as I walk in front of my place of residence, that every step I take covers $10,000 worth of land. Altogether a very happy condition of things.

I have written this brief history of my business life—brief toward the close, but full enough as to its beginning, which is really the important thing—with much pleasure to myself. I have written my inner life, or as nearly so as men trust themselves to speak, relying on my friend the editor to keep my identity a secret, sacred to himself. I have written it in the hope that some young men now starting in life may find in it lessons which will be cheaper to them than those learned in the dear school of experience. But the hope is a faint one. Nothing but experience satisfies or really instructs. The young men for whom I have written may ask if I am myself satisfied with the result of my life's work; but I shall not answer that question. Let them put themselves in my place. If they would be satisfied with my fortune, let them follow my plan. If any of them would not, let them avoid my example.

MILLING IN KANSAS IN 1883.

R. JAMES ABERNATHEY.

The year is now almost closed and for the southwest in general it has been a remarkably successful year and for Kansas in particular. Crops of every kind have been abundant in that state. About 30,000,000 bushels of wheat were harvested; nearly or quite the same amount of oats and at least 180,000,000 bushels of corn has ripened and is ready to be gathered for the market. Other products of the soil are proportionately plentiful. In proportion to the quality and quantity of the products of the soil, must a section be progressive and prosperous. And Kansas nobly responds to the sentiment. Everything shows life, energy, and activity. And at this present moment the business men of Kansas City are urgently moving for the erection of a $500,000 hotel, albeit the town may now be said to be alive with hotels, though none of them are distinctive and such as a town of Kansas City's importance should have. Kansas City, you know, is across the line in Missouri, or the greater portion of it is, but for all that, Kansas has made, and Kansas cherishes, supports, keeps and expands it.

In the march of improvement the mill men have been in no way behind. Many new mills have been built and old ones changed and enlarged. Among the strictly first-class mills of this section for the year I can name one at St. Joseph, Missouri, one at Atchison, Kansas, in progress, one at Leavenworth, finished and one in progress, one at Topeka, one at Wamego, one at Augusta, and one at Winfield. There are a number of others of less importance. Among the large mills that have been successfully remodeled on the best plans, can be named one at Lawrence, one at Topeka, one at Salina and one at Wellington. Among the small mills there has been a great deal of activity in the way of repairs. These things all indicate that the period of doubt and uncertainty is passed. There is no longer any disposition to halt and await events, but a determination to take immediate advantage of what there is at hand. The demand is for good flour and good flour the people will have, and to meet this demand the millers are either building new mills or putting their old ones in shape to make the best of flour, and they can mostly well afford it, for, while much of the time in the past two or three years, the great milling centers of the country which depend mostly on the great markets of the world, have been idle or running short time on small margins, the mills of the southwest have been running night and day on good margins. Kansas flour does not go on the markets. As a rule every sack is sold before it is made, and the maker knows what he is earning as he goes along. A great deal of the flour goes to Texas, but the greater part goes to Iowa, Illinois, Nebraska and northern Missouri. Between the miller and the consumer there is but one middleman, thus ensuring cheaper bread to the consumer and generally larger profits to the miller. The flour is good, the natural flour-making qualities of the wheat are good, and hence between that and the manner in which it is sold is found the reason why Kansas millers are busy and making money, while others are dull. That is the way it has been, that is the way I think it will be, and at the close of the present year I feel like predicting an equally prosperous coming year for the milling interest of this section.

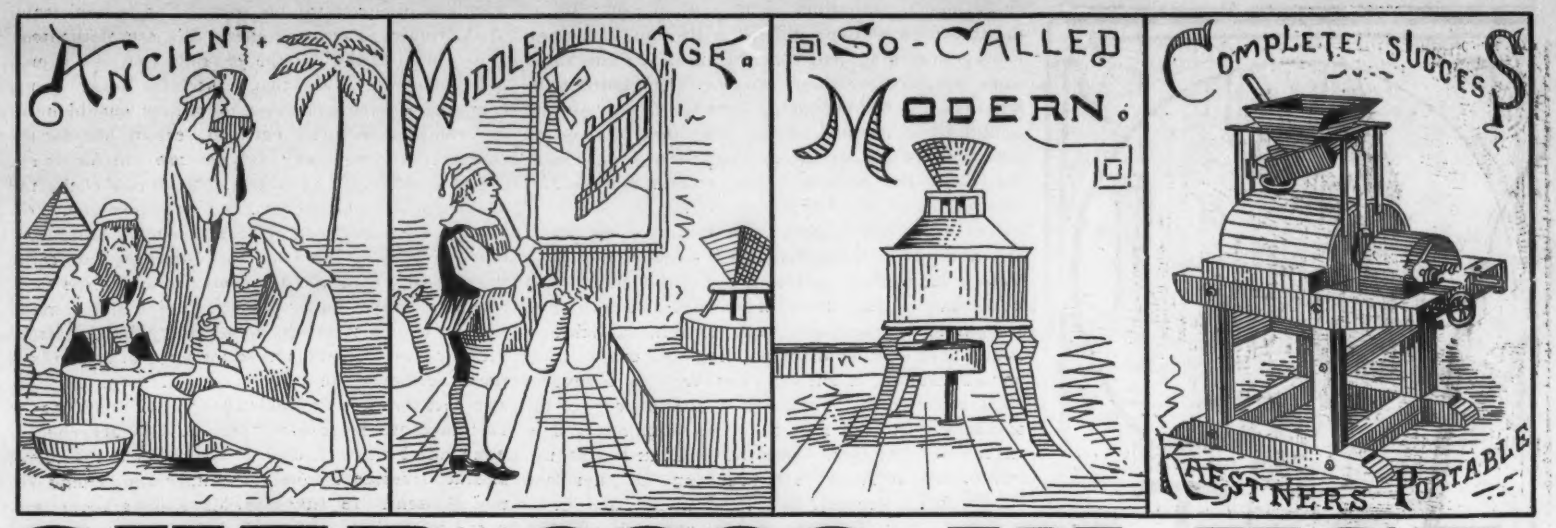
THE PLACE TO TEST FLOUR.

"The dealers in flour are better judges as to its quality than the makers. This is a general statement, and of course there are exceptions to it. But take the sellers and buyers of flour in the large markets and contrast them with the millers of the large manufacturing centers and the comparison will be to the disadvantage of the latter. The facilities for knowing flours are better in the flour markets than in the mills. Judgment or knowledge is found by experience or comparison; differences cannot be recognized without comparisons. The facilities for such examinations are the best where there is the greatest variety of flours. There is no better place to learn about flour, to be forced to recognize the smallest and most minute differences, than on the New York produce exchange. It is here that one sees nearly every flour manufactured in the United States. It is here that the best flours are most readily appreciated and where the demands of the trade are the most fastidious. On this exchange there is less dependence put upon brands and trade marks and more upon the judgment of the buyers and sellers than in any other market in this country, to say the least. There is no place better calculated to arouse a miller to the necessity of good judgment in the examination of the products of his mill. There is no place which will more thoroughly take the conceit out of a miller than this same place. It will not take him long to learn that this is a big country and that there are other good flours made besides his own, and that there are other millers besides himself. If his skull is not too thick, or his self esteem too vast, he may recognize that there are better flours than his, and millers who stand above him. If a miller will give himself half a chance, he can determine his exact position with reference to other millers of this country. He can convince himself with very little trouble that he is not a mighty man among millers.

It is not generally known what an improvement in the quality and yield of wheat is caused by the changing of seed. At even fifty miles from its place of growth, fife wheat will yield from two to five bushels more to the acre, and the quality will almost invariably be raised a grade over that of wheat produced by sowing the same seed on the ground where it was grown. This was proven to the satisfaction of all Minneapolis millers two or three seasons ago, by an experiment, the good effects of which are still felt here in the street wheat market, which is a very large one, owing to the high prices paid for wheat by the mills. During the season mentioned, the Millers' Association received a large quantity of hard fife wheat purchased from farmers' wagons and sleighs, and in the spring sold it out again at cost to farmers visiting the city for the purpose of obtaining seed. In but very few cases the seed was sown more than fifty miles from the place of its growth and for the greater part was in all probability moved less than half that distance. Yet the crop grown from it was one of the largest and finest raised in several years. In every case reported, this seed produced a larger yield and a better quality of grain than that of the same quality sown on the same farms on which it was grown. Millers can do a great deal to induce farmers to purchase seed from a distance, and two millers, located 100 miles or more apart can effect an exchange at only the cost of the freight from one to the other.

The following mode of detecting adulterations of flour is furnished by a foreign correspondent: If flour is heated with 70% alcohol and 5% muriatic acid, the liquid remains uncolored if the wheat or rye flour is pure. It turns yellow if adulterated with barley or oat meal, orange color with corn meal, and red with beans or cockle.

WE LEAD THEM ALL!



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MOST DURABLE, EASIEST OPERATED AND FASTEST GRINDING MILLS MADE.

Can furnish testimonials by the hundred. As our mills have a positive screw feed, they cannot be clogged, and will grind anything We build 4 sizes, 16, 20, 24 and 30-inch—suitable for any power from 2 to 15 horse. Write for prices and circulars to

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Guaranteed to carry 60 Pounds Pressure.
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STORAGE OF GRAIN: CAPACITY 25,000 BUSHELS.

Correspondence Solicited.

WORKS OF THE GEO. T. SMITH MIDDLINGS PURIFIER CO.

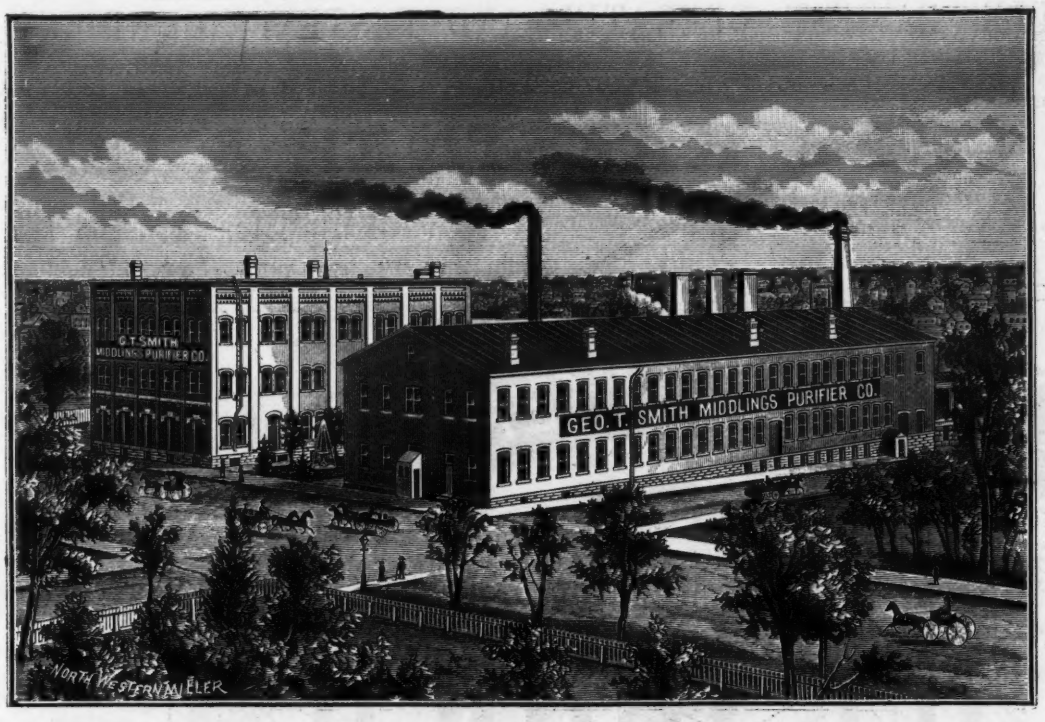
[See double page illustration.]

TO even the most disinterested observer, wholly ignorant of the important part performed by the purifier, in the milling of to-day, the extensive plant of the Smith Co., at Jackson, Mich., (not *Illinois*, as our esteemed contemporary the London *Miller* puts it in a recent article, reviewing the history of this company) must appear simply wonderful and bewildering in its immensity. How much more cause for amazement would this presumably ignorant person have, could he have seen the very modest quarters occupied by this company, scarcely six years ago, on this very spot and compared it with the present manufactory!

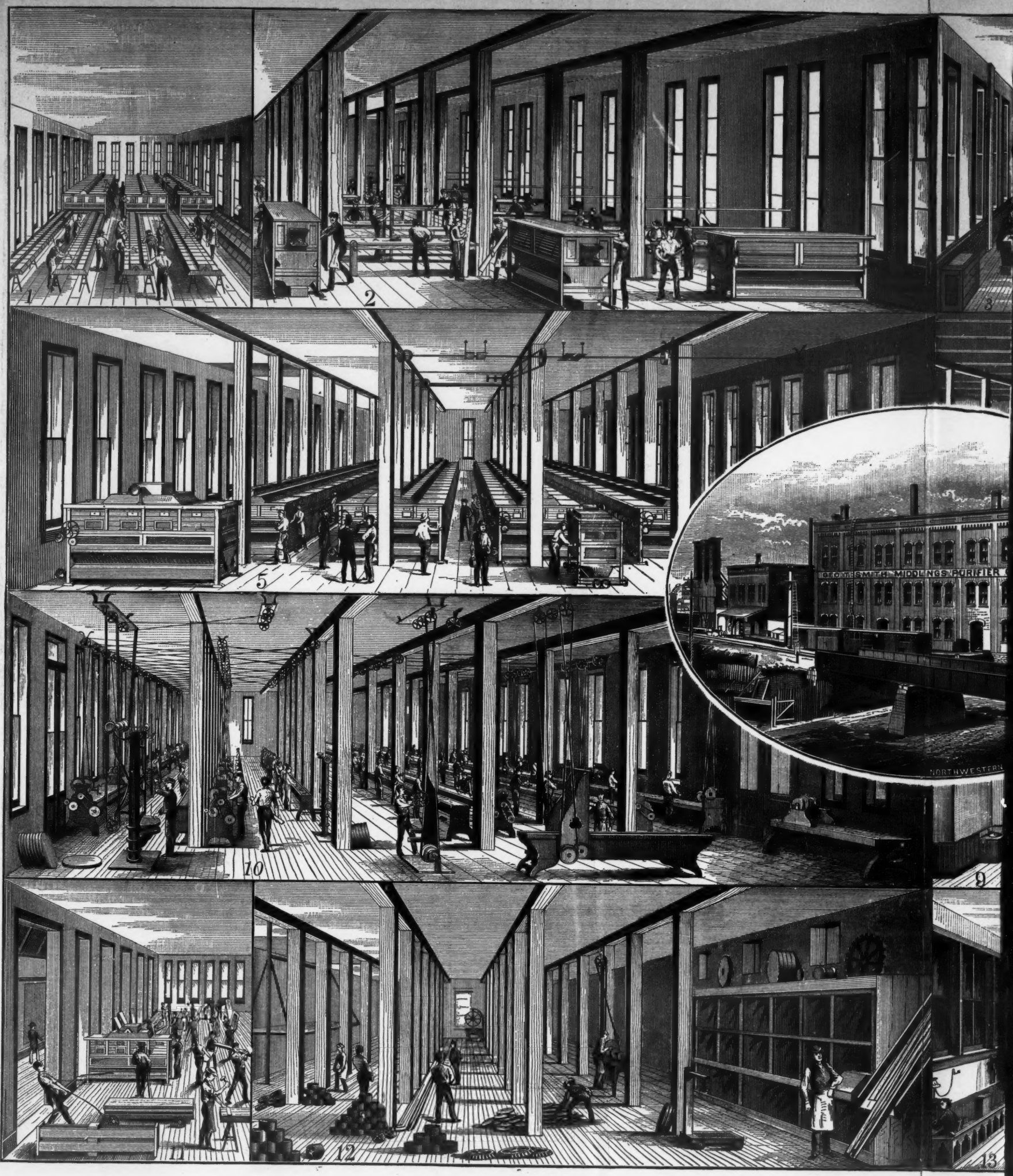
The history of this company reads like a romance from the Arabian Nights. Its marvelous growth from comparative insignificance, through adversity, opposition, distrust and doubt, to its present magnificent proportions, reads marvelously like fiction even to the American mind, attuned to rapid transit and apt to take the growth of the child to the giant in a single day, as a matter of course. It is hard to believe that it took only a few brief years for the Smith Co. to accomplish what it has—but it is only the old story of the oak from the acorn, with this difference that the acorn, which in this case was the Smith purifier itself, was an exceeding healthy one, and the oak was a wondrously short time in growing. As every one at all versed in milling history knows, the Smith purifier was invented in 1871. Until the year 1877, these machines had been introduced into a number of mills in different parts of the country and were well and favorably known wherever used. Previous to this date, however, they had never been built except in mills which Mr. Geo. T. Smith had been remodeling.

In the year 1877—the site of the building shown in our double page illustration, and which for convenience in describing we will call No. 2, was occupied by the Jackson City mill, owned and operated by Bennett, Knickerbocker & Co.; and on the ground now occupied by the building illustrated in this page, (which we will call No. 1,) there stood a frame planing mill, two stories in height, the property of Mr. Allen Bennett, of the same firm. Mr. C. R. Knickerbocker was managing partner of the milling firm; and in the transition of their mill from the old to the new process of milling, had met Mr. Smith and purchased some purifiers for their own use. Recognizing the worth of the machine and realizing, if only dimly, something of the possibilities in it, they resolved to enter into its manufacture. The firm began the manufacture of the purifier in the second story of Mr. Allen Bennett's planing mill in 1877.

It is rather difficult to imagine that a concern which began in this most modest manner—renting the upper floor of the planing mill where they did their wood work, having very crude machinery and a limited amount of it; their iron work done in various machine shops and foundries about town; could develop and expand, in such a short time to its present giant proportions. Yet such is the history of the company. In 1877 they sold 120 machines and in 1878, 300. The Geo. T. Smith Middlings Purifier Co. was formed in April 1878, with Wm. D. Thompson Pres't, Allen Bennett, Sec'y. and Treas., and C. R. Knickerbocker, Genl. Supt. On the 11th of June, 1879, a fire destroyed the Jackson City mills and the planing mill. With it of course was swept away the company's manufactory. The patterns were saved, however, and for some time the machines were made about town at different places wherever accommodations could be secured. The company at once began the erection of building No. 1, on the site of the old planing mill, and moved into it in Nov. 1879. This year their sales amounted to 600 machines—just twice the amount of business done the previous year.



In 1880, 1,000 machines were sold. In February of this year Mr. Smith went to Europe; he returned temporarily during the Cincinnati exposition, but again crossed the water in July 1880 and remained abroad until Aug. 1881. Mr. Allen Bennett, Secy. and Treas. of the company, a most able and astute financier and business man, whose services had contributed largely to the success of the company, died very suddenly at his office in Aug. 1881. Mr. M. Harmon, who had been with the company since its organization as mechanical superintendent, taking charge of the office business, purchasing supplies and attending to the correspondence, was elected to the position made vacant by the death of Mr. Bennett, and he has filled it with conspicuous ability. At the time of Mr. Bennett's death, a very large surplus fund had accumulated, as no dividends had been declared. It was proposed to invest this surplus, or a large portion of it, in a 1,000-barrel mill, on the site of the old Jackson City mill; and soon following Mr. Bennett's death, the foundations of the building were laid pursuant to this idea. The administrator of the estate, however, opposed this use of the company's money, first on the grounds that it was poor policy for the reason that it seemed unfair that a company offering machines to millers should enter into competition with them, and second because the charter of the company did not provide for its engaging in the milling business. Mr. Smith concurred in this opinion and to give the objection effect, the heirs of the estate sold Mr. Smith a sufficiently large block of stock to give him a controlling interest in the company. In 1881 the company sold 1,800 purifiers, and in the spring of 1882, finding the demand for their machines increasing so rapidly that their facilities for producing them were not equal to demands of the trade, they began the erection of the large four story structure shown in our double page illustration. At the election of officers in May 1882, C. R. Knickerbocker was made President, Geo. T. Smith Vice President, and M. Harmon secretary, treasurer and general superintendent. In July 1882, Mr. Knickerbocker disposed of his interest in the company, the company being the purchaser of his stock. The erection of the new building occupied the entire summer of 1882 and it was not quite completed on the 30th of September when Mr. Harmon, who had been managing the business, was prostrated by illness and the entire management both of the current business and the improvements then under way, was thrown on Mr. Smith. Mr. Harmon's sickness and convalescence kept him away from business until June 1883. In the meantime the new building was completed, filled with machinery, fully equipped and started up with a complete and competent force of skilled workmen. Other additions and improvements were made during this time, the dry-house and building No. 3 were constructed, the foundry on Pearl street purchased and the experimental, draughting and pattern makers' rooms provided in another building opposite the works. All these improvements were made under the direct personal supervision of Mr. Smith himself. The sales for 1882 reached the enormous number of 2,300 purifiers. From the very first day of his assuming control of the works, he began to spot the flaws in the machine as then built. Day and night were given, month after month was devoted to its mechanical improvement. Patterns for castings that occasionally gave trouble by breaking were changed until breakage was impossible. Steel shafting was substituted for iron, and hard wood for soft, until now there is more of the former than of the latter in the machine. All frames are made of it and the cant boards and many other parts exposed to wear or strain. The finish is as fine on every part as on a piece of first-class cabinet work. Every joint is tight and every piece is so nicely fitted that they are assembled and put together with scarcely a blow from the hammer. In these and a hundred other ways the machines turned out of the shops we are describing, show the supervision of a first-class mechanic and a far-seeing business man. As showing the perfection of the Smith purifier in principle even when built less carefully than at present, it may be stated that the



WORKS OF THE GEO. T. SMITH MIDDLINGS

(SEE DESCRIPTION.)

1. Section Third Floor; Building 2.
2. Centrifugal Reel Room, Third Floor; Building 2.
3. Draughting Room.
4. Setting-up Room, Purifier Department; Building 1.
5. Finishing Room, Second Floor; Building 2.
6. View on First Floor; Building 1.
7. View on First Floor; Building 1.
8. Bolting Cloth Room; Building 1.

NGS PURIFIER CO., JACKSON, MICHIGAN.

ESCRIPTION.)

9. Purchasing Agent's Office; Building 1.
10. Iron Working Machinery, First Floor; Building 2.
11. Shipping Room; Building 3.
12. Store and Receiving Room for Iron Stock; Basement; Building 2.
13. Business Office; Building
14. General Office; Building 1
15. Private Office; Building 1.

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books of the company show that less than fifty cents worth of repairs have been ordered for each of the 8,000 machines turned out from the beginning.

In May 1883, Mr. Smith was elected president, Geo. S. Bennett vice president and secretary, M. Harmon treasurer and general superintendent.

Early in 1882 the company secured license to manufacture the Martin centrifugal reel and began selling them in May of that year. The manufacture of this reel has proved a very important branch of the company's extensive business. They estimate the sales of this reel to be larger than those of all other manufacturers combined. Not satisfied to stand still, however, Mr. Smith began work more than a year ago on a new and improved reel which would still further advance the art of bolting and the result is the new Geo. T. Smith Middlings Purifier Co. Centrifugal, now ready for the market, a machine every principle of which is new, and which seems destined to play a large part in future milling operations.

From the first of January, 1883, up to date the Geo. T. Smith Middlings Purifier Co. sold 2,956 machines.

The present works of the company, as will be seen by the illustrations presented herewith, cover a large area and represent the investment of a vast amount of capital. Built especially for the purpose with special machinery for each detail of the work, their equipment is such that the company is enabled to produce the best workmanship at a minimum cost, and the work turned out is admittedly without superior in any part of the world. These now built here are much better in every respect than those produced a year or two ago, having hard wood frames, steel shafting, and being finished in the very best style. The company at present can make seventeen machines per day and its pay roll is $15,000 per month. Having its own tracks, machines are loaded on cars at the doors of the shipping room. Every department of office and works has its head who is held to strict accountability by Mr. Smith for the quality of every piece turned out, and, as in the shops, each workman has but one thing to do they are very expert in doing that well and quickly. Six years ago, suits were brought in Canada by Mr. Smith, for the maintenance of the validity of his patents. After one favorable and two adverse decisions in the minor courts, the cases were finally decided in his favor by the supreme court of the Dominion and the company's claims were fully sustained. After this final decision the company purchased the extensive plant of the Williams and Thompson Manufacturing Co., at Stratford, Ontario, and also bought out the Consolidated Middlings Purifier Co. at Toronto, which gave them the sole right to manufacture purifiers in Canada under all patents in litigation. These patents are identical with the United States patents and cover broadly every important feature in the purifier. The Canadian works have been in operation three months, employing about 100 men and are supplying nearly all the purifiers and centrifugals used in the Dominion, besides many grain cleaning machines. When the magnificent future of the Red River valley and the vast Canadian northwest are considered, the prospects for this branch of the company's business seems very bright indeed.

In this necessarily brief history of the largest establishment of the kind in the world, we have said but little of the numberless trials, disappointments and vicissitudes, which had to be encountered, endured and overcome before the final result was attained. Something of this is probably known to each of our readers. "There is no royal road to fortune." In 1877, they sold 120 machines, in 1883 over 3,000. This tremendous increase could not have been acomplished without persistent, determined effort and the exercise of peculiar and marked ability. Doubtless a great deal of credit should be given to the able management of the business which has grown to such proportions; but the great secret of success after all probably is in the merits of the machine itself, which would never have been brought to its present position had it not been for the long-continued and persistent efforts of Mr. Smith to secure and perfect his patents. In litigation extending from 1872 to 1877, vast sums were expended and a bitter warfare carried on, which finally terminated in his favor, as can be learned by the decisions of the commission of patents, in theer numberless interferences which were involved. All these contests in the patent office were carried by him personally and solely at his own expense.

Having given above some history of the Geo. T. Smith Middlings Purifier Co., we will describe briefly the company's works, as portrayed by our artist—and which are as complete and perfect as an enormous expenditure of money and the employment of the most experienced judgment could produce. In the illustration of them shown in this page—giving a view of the works from the south—building No. 1 is shown to the best advantage. This building is 56x218 feet and two stories in height and basement of sufficient height to place machinery in. This was the first building erected by the company. In the center piece of our double page illustration, we present a view of the works from the north—in which the building No. 2, but lately completed, shows most prominently. Back of it appear building No. 3 and the drying kiln. Building No. 2 is 105x70 feet, four stories in height and each story sixteen feet high. Building No. 3 is two stories high and its dimensions are 60x52 feet. The entire floor surface in the buildings occupied is 85,000 square feet. The visitor to the works enters building No. 1, where he finds himself in the room shown in sketch No. 13, which is occupied by the cashier, book-keepers and shipping clerks. From thence he goes to No. 14, the general office and reception room, where the correspondence is attended to and stenographers located. Back of this, extending along the side of the building, is the private office and director's, president's and general superintendent's office, shown in No. 15. Room No, 9 is on the same floor of this building and is occupied by the purchasing agent and time keeper. Here all wages are paid and supplies purchased. In front of this, as shown in sketch No. 8, is the bolting cloth room where a large number of women are busily employed using four of the latest improved twin needle sewing machines, driven by power, making up bolting cloth. These machines are provided with a patent folder, so that in sewing two pieces of bolting silk together, a double stitch seam is made of less than ¼ inch. The company use only Dufour's best cloth and carry $12,000 worth of it in stock. Views 6 and 7 show that portion of building No. 1 where all the heavy wood working machinery is located. Ascending to the second floor of this building we reach the setting up room of the purifier department (sketch No. 4.) On this floor are some saws, universal wood workers and other light pieces of wood working machinery. Here the purifiers are put together. A covered way leads from this floor to the corresponding floor of building No. 2. Here, as shown in engraving No. 5, is the finishing room. Here the bearings of the machinery are babbitted and every machine started and fully tested and varnished ready for shipment. From this room the machines are taken to the first floor of building No. 3 by means of an elevator of sufficient size to hold the largest purifier set up. Sketch No. 11 shows the shipping department first floor building No. 3. Here the machines are knocked down, boxed and loaded on the cars, tracks for which run to the doors. Sketches 1 and 2 are views on the third floor of building No. 2. This department is used for the manufacture of centrifugal reels. The iron and wood work of these machines are made in the iron and woodworking departments of buildings No. 1 and 2. Sketch No. 10 represents the first floor of building No. 2 and is fitted with ironworking machinery. No. 12 is the basement of building No. 2, and which is used as storage and receiving room for bolts, nuts, shafting, casting, iron, etc., etc. At the rear of building No. 1, a Buckeye engine furnishes power for this portion of the establishment, and one of the best samples of the celebrated Reynolds-Corliss engine, from E. P. Allis & Co., Milwaukee, is in the basement of building No. 2, supplying power for this and building No. 3. The new boiler room is located between buildings 1 and 2, and contains a battery of three steel boilers. The draughting room, shown in sketch No. 3, is located in a building (not shown in views) across the street from building No. 1. Besides the buildings shown in our illustrations, the company is the possessor of a foundry located on Pearl street, having a capacity of ten tons of castings per day.

It will be seen from our illustrations and description that the works of the Geo. T. Smith Middlings Purifier Co. are as extensive as complete, and their facilities for producing their machines simply perfect. By the employment of a large force of mechanics they are an important factor in the prosperity of the thriving city of Jackson, and Mr. Smith can with good reason be proud of the result of his long continued exertions. Our description has been a long, but we trust not an uninteresting one. Like most stories, it has a moral, which is more or less plain, as the reader has given more or less of his attention to it. For the benefit of those who have paid but little attention to it, we will summarize it briefly. It is this: Get a good thing; improve it as fast as improvement can be devised; defend it with the last dollar, and last and most important of all, make it better, cheaper and more durably than any one else; and success is certain.

SCOTCH FIFE WHEAT.

[Detroit *Record*, Oct. 27.]

Last spring twenty-six members of the Becker County Farmers' Union clubbed together to the extent of $5 each for the purpose of giving the Scotch fife wheat of D. L. Wellman, Frazee City, a trial, and the result has been most satisfactory. Thirteen bushels of the wheat were bought at $10 per bushel, and Iver Christianson, of Richwood, sowed it on thirteen acres of new land, for one-fourth of the yield. The wheat was threshed last Wednesday and divided among the stockholders yesterday, each receiving twelve bushels for his investment of five dollars, the total yield being 403 bushels, 61 pounds to the bushel, of the finest quality of No. 1 hard. Mr. Wellman began growing the wheat several years ago from a few kernels received in a letter from the Saskatchewan valley, and the grain has been hand picked and kept perfectly clean each year. It is the pure article of the Scotch fife wheat.

The Farmers' Union gives the following testimonial:

Capt. D. L. Wellman, Frazee City, Minnesota:

DEAR SIR:—I am directed by the members of the Becker County Farmers' Union, who bought the Saskatchewan fife wheat of you last spring at $10 per bushel, to write you that the investment has proved to be a good one and I can say exceeds the highest expectations, for each one is more than satisfied that it is the best and purest Scotch fife that has ever struck this upper country. GEO. W. TAYLOR, Sec.

Russia appears to be losing her pre-eminence as the granary of Europe in face of such competing countries as America and India, but whether or not she can yet claim to be a great manufacturing country may be seen from the fact that, according to statistics lately complied in the ministry of finance, there are just 17,176 large manufactories and works of all kinds in the 52 provinces—an extent of land as big as the rest of Europe—with not more than 800,000 work people employed. This total does not include 16,272 small establishments of the peasants, of not more than five workers to each, where chiefly articles of domestic use are wrought, and has been calculated for the purpose of regulating infant and female labor in works and factories.

Those having any idea of investing in milling property should correspond with the gentleman advertising in this issue under the name of J. G. Brown. The property for sale is located near Sandusky, Ohio, is in perfect condition, completely equipped, enjoying a profitable business which was established many years ago. The terms are remarkably easy, and the only reason for the owner's selling is ill health. The right man will find this an extraordinary opportunity.

ROLLER **CROWN** MILLS.

MANUFACTURERS OF

HIGHEST GRADES OF FLOUR!

FROM

Hard Spring Wheat.

CAPACITY 3,000 BARRELS PER DAY.

THE FOLLOWING ARE SOME OF OUR

BRANDS:

CROWN ROLLER BEST. BIG GUN,
EMPEROR, BAKERS' GEM,
POINT LOOKOUT. HARVEST.

CHRISTIAN, BROTHER & CO.

MERCHANT MILLERS,

MINNEAPOLIS, - - MINNESOTA, U. S. A.

A. R. HALL, President. C. McC. REEVE, Sec'y and Treas.

HALL & DANN BARREL CO

CAPITAL, - $150,000.

STAVE AND HEADING MILLS:
KNAPP, BALDWIN, BOYD, OLIVETTE AND BELDENVILLE, WIS.

BARREL FACTORY:
MINNEAPOLIS, MINN

DAILY CAPACITY, 4500 BARRELS.

THE ONLY FACTORY IN AMERICA MAKING THE

DOUBLE STAVE BARREL,

A PERFECT PACKAGE FOR FLOUR.

This barrel is made of an inner and outer circle of Staves, with every joint broken so that there can be *no Leakage*. The heading used is all *kiln dried*. The two sets of staves make a total thickness of over half an inch, against three-eighths of the common manufacture, making the chime the most substantial of any flour barrel made.

Insist upon your Correspondents giving you the Patent Double Stave Barrel, which can now always be had in Minneapolis. Used by

WASHBURN, CROSBY & CO.,	Minneapolis.	FRANCIS S. HINKLE,	Minneapolis.
J. A. CHRISTIAN & CO.,	"	HINCKLE, GREENLEAF & CO.,	"
SIDLE, FLETCHER, HOLMES CO.,	"	H. F. BROWN & CO.,	"
CHRISTIAN, BRO. & CO.,	"	D. R. BARBER & SON,	"

And the COLUMBIA MILL CO,

J. A. CHRISTIAN & CO.

PETTIT ROLLER MILLS

MANUFACTURERS OF

THE BEST GRADES OF FLOUR

—FROM—

Selected Hard Minnesota, Manitoba and Dakota Wheat.

CAPACITY 1,200 BBLS PER DAY.

THE FOLLOWING FAMOUS BRANDS:

SUPERLATIVE, TRIPLE EX. CHRISTIAN'S EXTRA,

PEARL, IMPERIAL, BAKERS' EXTRA.

MINNEAPOLIS, MINNESOTA, U. S. A.

FIRST PREMIUM

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At the MILLER'S INTERNATIONAL EXHIBITION!

"DOES IT PAY?"

BY HOMER BALDWIN.

THE question of profit or otherwise in adopting the Hungarian system of milling in this country has long been mooted, with few attempts at a satisfactory solution, but by diligent effort the NORTHWESTERN MILLER has been enabled to shed light on the subject. In our issue of Oct. 19 we said:

"Homer Baldwin, of Youngstown, O., has long been known as one of the most advanced millers of the country. Of late years he has given much attention in both his mills, to purification between reductions, of which he makes a larger number than any other miller in this country of whom we have any knowledge. Mr. Baldwin's method of work more nearly approaches that of the Hungarian mills than that of the ordinary run of American millers, and the results, as nearly as can be learned, are very similar. We have advices from Boston, of recent date, showing that when the best spring wheat patents were ranging from $7.25 to $7.50 per barrel, and the best winter wheat patents from $6.50 to $6.75, he was getting $7.75 for his patents made from winter wheat. This is a wonderful showing of the usefulness of carrying purification between very gradual reductions to an extreme. Converted into Glasgow prices on the date mentioned, Mr. Baldwin's flour would have ranged fifty to seventy-five cents per sack above the best Hungarian.

"Mr. Baldwin's success in producing a very fine patent grade is a triumph for American skill and American wheats. But as to the question, "Does it pay?" which will be asked by every miller, we can not say, and we would call on Mr. Baldwin for some definite information on this point. Our position is and always has been that the best milling is that which brings the most clear profit to the miller's pocket, and we have believed in and advocated a style of milling which would produce from the wheat three or more grades of flour, each excellent of its kind, and more especially so in the case of the medium and low grades. Of course all millers are aware that by using a large amount of stock and taking great pains in the reduction and separation, they can produce a better barrel of flour than that which they are selling under their regular fancy brands. Mr. Baldwin is doubtless to a certain extent doing this, though we cannot say to what extent. Whether the low grades suffer or not, he is producing an extremely high grade patent. What we would like to know, and every miller shares our curiosity, is whether such milling pays or not. Presumably it does. Mr. Baldwin is a shrewd business man, who has always had the reputation of being a money maker, and he would not persevere in his course if he did not find it paid him. But before recommending it for general adoption, we should like some figures. Will Mr. Baldwin accommodate us, and through us his fellow millers?"

***

After repeated solicitations, Mr. Baldwin writes as follows:

"In answering your question, 'Does it Pay?' I would say that as I understand it, the aim of every miller is to so reduce and separate the pure from the impure parts of the wheat grain, that the resultant products will be of the greatest commercial value. This, then, being the primary object, the question arises, how can this best be done? As any form of reduction of the pure portion also reduces a portion of the impure parts, it is essential that we adopt such tools and processes as will reduce the least percentage of said impure portions. For this reason we use corrugated rolls in the reduction of the wheat, and smooth iron rolls for all subsequent reductions, using many reductions, that the operation may be gentle. Next come the separations, or purifications. We find that after each and every reduction, we have finished and unfinished material which must be effectually separated, and the unfinished portion subjected to another reduction and separation. This is partially done by the use of the common reel, or centrifugal, but as the function of these is principally a sizing operation, we must continue the separation by means of specific gravity. Hence we must make use of an air current, using some form of purifying, after the sizing operation has been performed, between every reduction, so that our separation of the pure from the impure may approach perfection as nearly as it can, bearing in mind that our operation is twofold, reduction and separation. Were it reduction alone, nothing would accomplish our object quicker or better than millstones, but their action is so severe that perfect separation cannot be made, hence their discontinuance.

The objections to this system are: A greater number of reductions, separations and purifications, require more machines, entailing a larger outlay in construction, and requiring more power to drive them, and perhaps a trifle more waste. But that the resultant product is more valuable is beyond dispute. The only disputable question is a commercial one. Is the enhanced cost equal to the increased value? In other words, 'Does it pay?' The cost for fuel to make a barrel of flour as ordinarily made, is not exceeding five cents. The additional fuel cannot cost more than one or two cents, but of course it requires more care, and more machines to be replaced when worn out.

But who cares for that if the machines, in the meantime, have paid for themselves, and also paid you well for their introduction and use, and kept your mill running constantly through dull, as well as lively times? I am entirely satisfied with the result, and trust you will require no further explanation from me."

***

Mr. Baldwin's statement is not only highly interesting, but is complete and satisfactory. For the benefit of the editor of the NORTHWESTERN MILLER alone, Mr. Baldwin appends a note marked "confidential," in which he gives the actual figures from his mill books, showing most conclusively that his system is a very profitable one, and that he can give an emphatic affirmative to the question, "Does It Pay?"

THE WHEAT CROP OF 1883.

The estimate of the yield of the wheat crops of the world, published in September, in most cases showed a deficiency, says the London *Corn Trade Journal* This was referred to in the *Journal* in detail on Sept. 10th. when it was considered advisable to accept without question as many of the published figures as possible. Since then several government returns of yield have appeared and the position is being reversed, for estimates now show conclusively that there is a large surplus of wheat. It is of great advantage in making such estimates that they should have the support of leading authorities outside the United Kingdom, and for that reason the following statement (as far as the first addition) is copied from the *Allgemeine Muehler*, which omits what follows. Differences of opinion must exist in many points in the statement, especially as regards the columns of yield and consumption, (which includes seed). The most important columns are those of exports and imports, and to bring these into accordance with the latest information and opinions, they are given alone in a second table alongside the amended estimate in the *Journal* of Sept. 10th. last:

	Yield	Consptn.	Exp.	Imp.
United States	58,500,000	38,625,000	19,875,000	... ...
France	29,750,000	34,000,000	... ...	4,250,000
Russia	20,875,000	10,250,000	10,625,000	... ...
Germany	19,500,000	21,250,000	... ...	1,750,000
Italy	17,625,000	18,500,000	... ...	875,000
Turkey	12,000,000	10,875,000	1,125,000	... ...
Great Britain	12,000,000	26,250,000	... ...	14,250,000
Austria	12,000,900	9,875,000	2,125,000	... ...
Spain and Portugal	11,625,000	11,625,000	... ...	... ...
Canada	4,875,000	3,875,000	1,000,000	... ...
Australia	3,875,000	2,125,000	1,750,000	... ...
Chili	2,125,000	1,375,000	750,000	... ...
	204,750,000	138,625,000	37,250,000	21,125,000
Roumania, etc.	... ...	... ...	... ...	... ...
Holland	... ...	... ...	... ...	750,000
Switzerland	... ...	... ...	... ...	1,750,000
Belgium	... ...	... ...	... ...	2,000,000
Egypt	35,000	... ...	1,250,000	... ...
Persia	... ...	... ...	250,000	... ...
Algeria	... ...	... ...	500,000	... ...
India	12,000,000	37,000,000	5,500,000	... ...
China	... ...	... ...	... ...	... ...
West Indies	... ...	... ...	... ...	2,250,000
	216,750,000	225,625,000	44,750,000	27,875,000

BEST TIME TO HARVEST GRAIN.

The crowning act of any vegetable is to bring forth fruit. When in the growth of a plant there is presented the maximum amount of good qualities, that period should mark the commencement of its harvest, and when wheat and other cereals attain this point, the circulation of their sap ceases, their power of assimilating mineral matter is destroyed, and a change from green to yellow takes place, showing that they cannot further increase in weight. This is known as the maturity period of the grain, and is the proper time for cutting. When the green color of the straw just below the ears changes to yellow, the grain cannot afterwards be more fully developed, whatever may be its stage of ripeness. Every person acquainted with wheat advocates early cutting. Within three weeks of being fully ripe, the straw begins to diminish in weight, and the longer it remains uncut after that time the lighter it becomes, and the less nourishing if designed for cattle food. On the other hand, the ear, which was sweet and milky a month previous to being ripe, gradually consolidates, the sugar changing into starch, while the milk thickens into the gluten and albumen of the flour. If cut at this time, when the wheat contains the largest proportion of starch and gluten, it will produce the most fine flour, the least bran, and the greatest weight per bushel, as at this period the grain has a thin skin and hence little bran, as this is the last thing to be perfected, and the growth of the seed for several days before its perfect development is directed solely toward its covering. Since this is the least valuable part of the grain, its increase is undesirable, and when in excess it becomes of less value to the miller. Wheat passes the period of perfection from ten to fourteen days before its full ripening, and has begun to lose its value several days before its complete maturity. It is considered safe to cut the grain the moment the stem changes in color and when the grain, however soft, gives out no longer a milky juice under pressure. One exception only exists as to early cutting, and that applies to such as is intended for seed; it is then desirable to have the bran perfect to protect the germ.

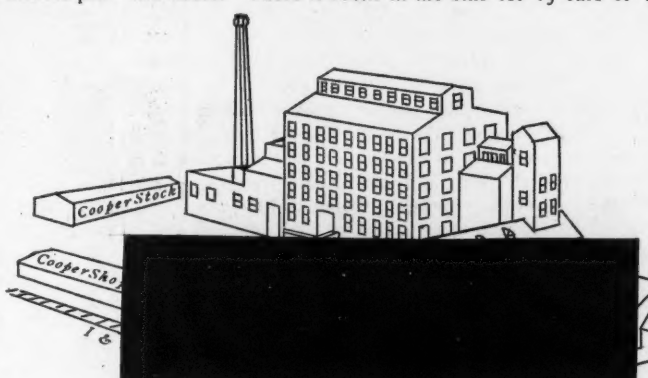
THE PLANET MILL OF D. L. WING & CO.

BY E. E. CARRERAS.

ITCHFIELD, Ill., is about 50 miles from St. Louis and in the center of the best wheat growing section of Illinois, and although to many it seemed odd that so large a mill should be erected in so small a town, yet by a little reflection one can very easily see the advantages it possesses over a mill of the same magnitude placed elsewhere, these advantages being its connection with both the Indianapolis & St. Louis railroads, and the Wabash railroad with its Chicago and eastern connections, besides several midland railroads for bringing the wheat to the elevator of the mill and coal to the furnace. An unfailing water supply for the boilers is furnished free, and this is an item of no small importance. In fact, the clear-headed proprietor built wisely and built well when he selected the broad Illinois prairies with the rich grain fields as the place in which to locate the darling of his heart, building a lasting monument thereon to his industry and enterprise.

Arriving at the mill we find that the mill, with its elevators, warehouses, cooper shops, stock storehouses, oil house and railroad frontages covers an area of 1,200 feet by 700 feet, the dimensions of the mill proper being 187 feet by 50 feet, and 110 feet from basement to cupola. The cooper shop is a large brick building 150 feet long by 50 feet wide, equipped with all modern machinery for making barrels, and admirably lighted with its many windows. The building is at a safe fire distance from the mill, and is operated by steam power and boilers separate from the mill, and has capacity for an output of 2,500 barrels per day. After the barrels are finished an inclined plane conveys them to the storehouse, another separate building 150 feet by 50 feet and iron roofed as safeguard against fire. From this house another covered inclined plane runs them to the packing room of the mill, a distance of 150 feet.

After inspecting the interesting manufacture of barrels, we noticed the two storage houses, 150 by 50 feet, where the manufactured cooper supplies are kept, took a look at the oil house, another isolated building, inspected the fire pumps, carefully located to cover all the buildings in case of fire, watched the unloading of the railroad cars with the cooper stock, running in on a separate switch from the grain and flour switches. We walk across the great yard of the engine room, over which presides Chief Engineer Tinklepaugh, than whom a better engineer never held the throttle or tied a necktie in front of one of the handsome mirrors so plentifully hung around, or put a No. 11 shoe on the brussels carpet of his room. Under Mr. Tinklepaugh's escort we inspected the boiler room, situated at the south end of the mill. This is very complete in its coal and boiler arrangements; the boilers are in two separate batteries, one battery consisting of two Babcock & Wilcox boilers, 250 horse power each, and the other battery has three boilers of the same manufacture, and develops a power of 500 horse. Between the two batteries is the immense smoke stack, one of the finest pieces of chimney architecture in the state. It looms up 125 feet high, hexagonal in shape, constructed of the very best material and is connected with the boilers by underground flues. A Morse heater heats the water supply for the boilers, the pumping being done by a Knowles six inch pump. The construction of the boiler house shows considerable forethought, and it is excellently adapted to its requirements. Through the center of the roof for the entire length, a large projecting skylight with swinging transoms is built, making the ventilation admirable. On the west side a railroad track is laid. The cars of coal being switched on to it, the coal is dumped into bins immediately opposite the fire doors. There is room in the bins for 15 cars of



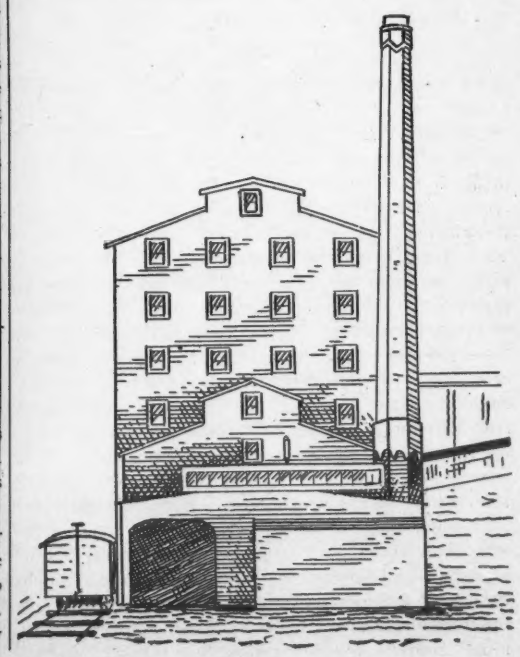
observed Chicago time. Those employed by the Indianapolis & St. Louis railway had Columbus time. The conservative citizens of Litchfield held a compromise between these two, while the army of workmen on the pay-roll of the mills had a fourth standard, regulated by the telephone in the St. Louis office. It was, owing to this confusion, impossible to determine just whether the sun was behind time or Wabash No. 3 ahead, and to place the matter beyond debate this worthy mechanic constructed a mammoth whistle, with which he raised such a noise when he decided it was 7 A. M., noon and 6 P. M. that the people in the county forgot everything else. You might run the meridian of Greenwich right through Litchfield, and if the event wasn't recognized by Tinklepaugh's whistle the people would give the new parallel the cold shoulder. The seminary in Hillsboro, 14 miles distant, sets its clocks by this monitor.

It is told that one morning when the mill shut down and the steam was too low to assert itself, that the schoolchildren of Hillsboro lost the morning session and the shopmen on the railways were docked a quarter of a day—simply another proof that to have things right a man must blow his own horn.

The fire protection of the mill is manipulated from the engine room and consists of a series of three inch steam pipes leading to and opening on all floors. Communication to the engine room is made by electric signals, and at a moment's notice any part of the mill can be flooded with live steam.

Being joined by Head Miller Popplestone, we proceeded on a promenade through the mill. The mill building is six stories in height, surmounted by a large cupola loft and small observatory. It has a length of 135 feet, a width of 55 feet, and is constructed of the best pressed brick.

Entering from the north we stepped into the roller room, where a vast array of rolls was in unceasing operation. The equipment consists of 48 double sets, of which 18 sets are the celebrated Cranson-Daw-



son" corrugated rolls, the balance Gray's patent. These are placed in four rows, and in easy reach of the operators. Eight runs of Munson's stones are also in this room. All the gearing, conveyors and elevators used in connection with the grinding department are placed underneath the floor in the basement, which has been specially arranged for this purpose. The mammoth driving belt, which transmits the power from the engine to the gearing in the attic, passes through the south end of this room. This belt is gigantic in size, being 22 inches wide and 280 feet long, and manufactured by J. B Hoyt of New York. Ascending to the second floor we observe that the arrangement includes four Gray smooth rolls, one Richmond centrifugal reel, 4 Smith purifiers, 4 Prinz dust collectors.

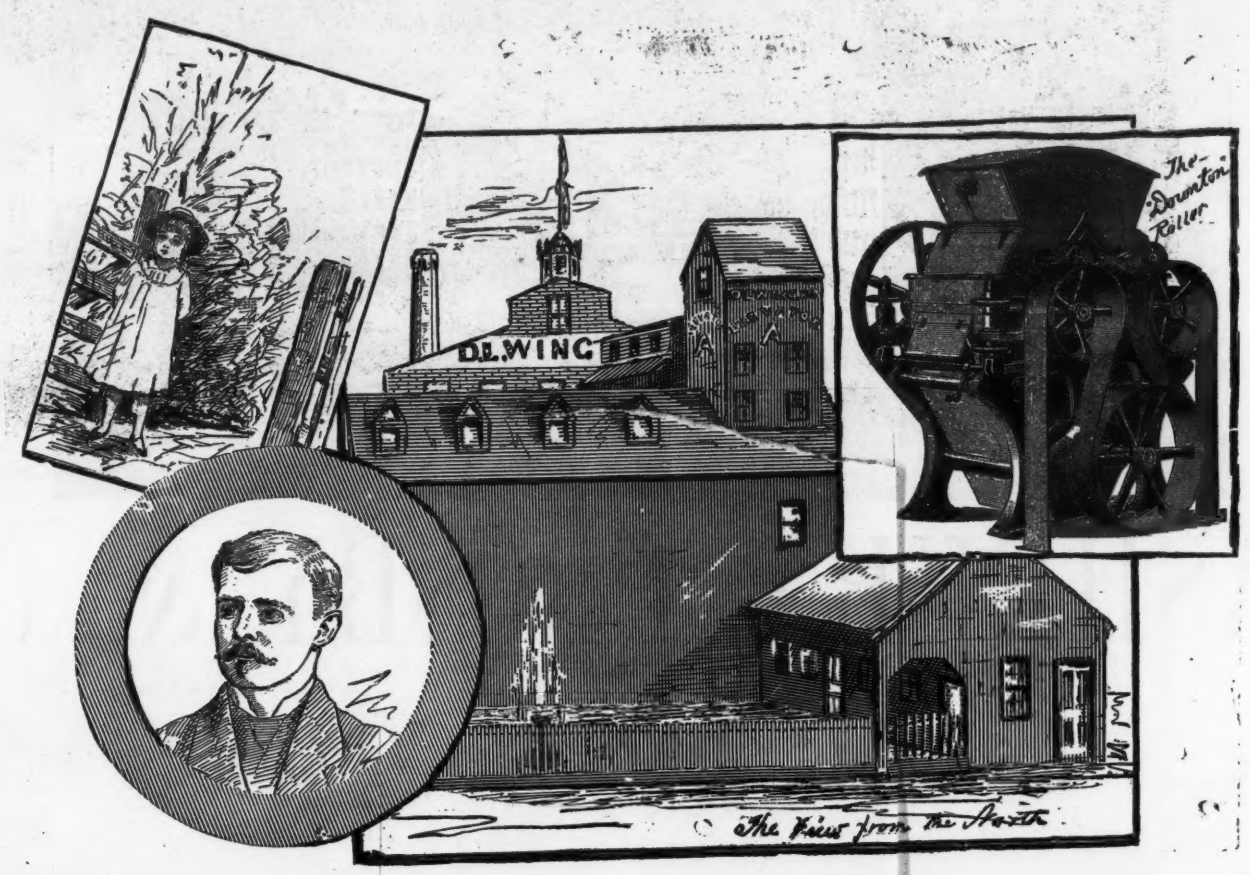
The third floor has 10 Smith purifiers, with Kirk & Fender's dust collectors attached, 3 Richmond centrifugal reels, 1 Empire bran duster, 3 other bran dusters. In fact the 2nd, 3rd, 4th and 5th floors are duplicates of each other, the purifiers being in one unbroken line on each floor, on the west side of the mill. The elevators run through the center and the bolting chests fill up the space on the east side of the mill, form are all connected by a series of movable skids, greatly facilitating the movement of the packages of flour in sacks and barrels.

The bran and ship stuff bins are north of the packing room, on the first floor of elevator B, conveniently situated so that the loading can be rapidly done by spouting into cars on the track which is laid on the west side of the mill. The mill elevators, two in number, A, and B, are about 25 feet from the mill and connected with it by several lines of underground conveyors. They have a storage capacity of 150,000 bushels. The first floor of elevator B, is used as a receiving room for wagon wheat, and has 8 large hopper scales. Three Richmond cleaners and separators, are used in the elevator for cleaning wheat, while at the top of the elevator 2 Silver Creek magnetic machines are in operation. In the north-eastern corner of the ground the office building is situated. This building is a beautiful and substantial structure, 2 stories in height, with a mansard roof. The ground floor is divided into the various department offices, and the second floor into apartments for the use of the bachelor members of the office corps.

The grounds surrounding the mill and buildings mond brush machines. Thus the wheat is doubly brushed after being scoured. This mill has carried the cleaning of wheat to a very high degree of perfection. Of course the magnetic machines of Howes, Babcock & Ewell remove the wire, and the Kurth cockle machines get rid of the little black cusses that do so much mischief in the flour.

It is almost impossible to describe so gigantic a manufactory as this in a short sketch, but that it is the largest and most complete winter wheat flour mill in this country none can doubt. The orders given by Mr. Wing to Robert L. Downton, the mill builder and contractor, were to make the Planet the *very best flour mill in the world, regardless of cost*, and the grades of flour made by the mill, with the amount, 1,800 barrels per day, is sufficient testimony as to how well the orders have been carried out by Mr. Downton, who was ably assisted by Mr. Harry E. Richardson, the foreman millwright of the Downton Manufacturing Company, and their head draughtsman, O. W. Getchell, both good boys from the Flour City, Minneapolis.

The capacity of this mill is from 1,800 to 2,000 barrels per day, and in this necessarily brief sketch, the



and although the floors are very full of machinery, there s ample space to get around and a capital light on both ides to see the manufacture of the flour and the working of the machinery. The 6th floor contains the heads of the elevators, 64 in number, with a forest of spouts running therefrom to distribute the material to the various reels and purifiers standing up in this floor. From the bottom, one is impressed with the solidity of the mill structure and the easy operation of the machinery. There is no jar or shake and nothing is heard but the steady hum of the revolving of the vast machinery situated below. From this elevation we descended by the passenger elevator to the packing room, in the new addition to the mill. The first floor of the addition is the packing room and is equipped with 5 Silver Creek packers and 3 sets of scales. This room is shut off from the roller room by heavy iron doors. On the northeast end of the mill, connecting directly with the packing room, is the shipping platform 75 by 60 feet, covered with a gravel roof, and extending to the railroad track on the east side. Adjoining the platform is the warehouse, having a storage capacity for 10,000 barrels.

The packing room, warehouse and shipping platare laid out, contrary to general rule, into beautiful flower beds, the freshness of which is greatly augmented by a large fountain, in full operation.

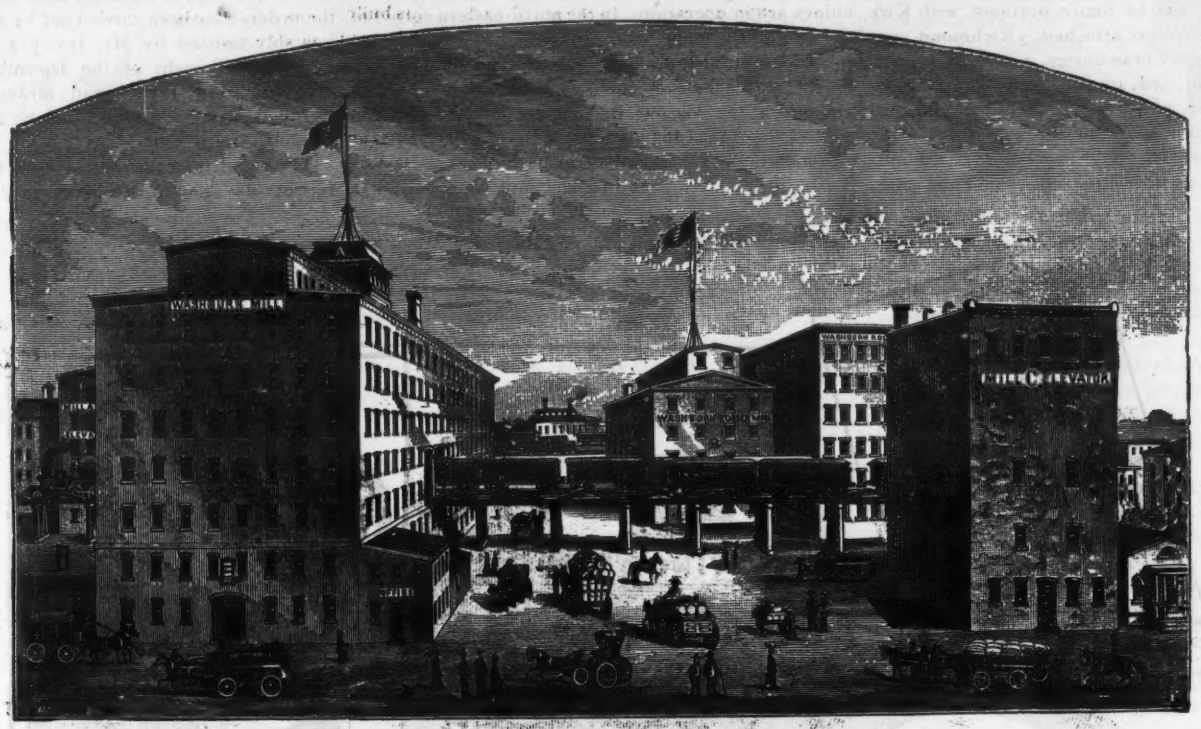
After inspecting the packing room we ascend to the first story of the new addition. In this story the first break of the wheat is made on 9 Jonathan Mills disc machines. The flour bins over the packers run through this room and extend up 3 stories higher, but by the advice of Head Miller Popplestone we ascend to the upper floor of the addition. This addition, the part of the mill in which the flour is manufactured, is perfectly separated from the mill by iron doors and the 3 upper floors are used for cleaning wheat, so that no dust or dirt can possibly get into the manufactured goods. The wheat cleaning machinery is very complete and makes a mill in itself. The wheat is received on the 3 Richmond warehouse separators, from them it passes to 3 Richmond mill receivers and from these machines it is conveyed to graders for assorting the small from the large wheat before the final cleaning. After the wheat has been graded it runs through 3 Richmond scourers, 2 for the large and 1 for the small wheat. From these scourers it runs through 3 Richmond brush machines and then again to 3 other Rich-

writer has attempted not only to describe this monument to a man's energetic efforts, but to give a practical illustration of what the advanced ideas of an experienced millwright can produce. The builder of this mill has always upheld modern and advanced adaptations of milling principles when his knowledge convinced him that they were right. He has promulgated milling systems which have proved themselves to be correct. This gentleman, Mr. Robert L. Downton, of the Downton Manufacturing Company of St. Louis, has completed many successful mills in this section of late, and his name is prominently and favorably known among our millers. His close study of milling appliances and his vast knowledge of modern manipulation fit him most thoroughly for his calling, and hence it is that the following mills owe their successful operation to his arrangements: The Atlantic mill of 800 barrels capacity; H. C. Cole & Co. mill at Chester, Ill.; Sawyer & McCracken mill, at Nashville, Ill.; John Gregg mill at Manchester, Mo.; John F. Antes & Co. mill at Sedalia, Mo.; C. P. Chapman, & Co. mill at Pittsfield, Ill. and the Geo. P. Plant Milling Co.'s new mill of 800 barrels capacity, successfully started up two weeks ago, besides many others,

C. C. WASHBURN

FLOURING MILLS

MINNEAPOLIS, MINN.



WASHBURN, CROSBY & CO.,

PROPRIETORS.

C. C. WASHBURN'S Estate. — *CHAS. J. MARTIN.* — *WM. H. DUNWOODY.*

JOHN CROSBY. — *W. D. WASHBURN.*

BRANDS:

WASHBURN'S SUPERLATIVE.		**WASHBURN'S SNOWDROP.**	
"	**000**	"	**No. 1,**
"	**00**	"	**IRON DUKE.**

1821			a		
1825			a	869,644	
1830			a	444,107	224,823
1835			a	755,781	588,276
1840			a	574,279	338,333
	June 30.				
1845			a	840,184	411,741
1850			a	6,595,092	3,892,193
1855			a	7,807,585	6,961,571
1860			a	3,314,155	2,399,808
1865		69,479	$82,049	2,818,493	3,686,957
1870		255,490	140,512	1,392,115	1,287,575
1875		91,118	61,408	28,858,420	24,456,937
1880		1,128,923	784,819	98,169,877	53,298,247
1883		433,005	299,137	40,586,825	27,756,082

a Included in "Other small grain and pulse."

The figures show some fluctuations that are rather strange. Wheat flour, corn, corn meal and rye flour were the principal items in the year 1820–21, though the rye flour export did not increase so steadily as the others, being at its highest in 1849–50 and declining about 50 per cent in the succeeding five years, after which it declined to a mere trifle from 1859–60 to 1882–83. Wheat and wheat flour exports fluctuated considerably from 1820–21 to 1844–45, since when wheat has increased steadily until 1879–80, but shows a decrease for 1882–83. Wheat flour exports, however, increased steadily except one year, and latterly rapidly, from 1834–35 to 1882–83. Exports of corn meal were largest in 1879–80, and in 1882–83 were but little more than double those of 1820–21. Corn exports fluctuated somewhat, but rose very steadily from 607,277 bushels in 1820–21 to 98,169,877 bushels in 1879–80. In 1882–83, however, they were down to 40,586,825 bushels. Oat exports were small and show little change from 1864–65 to the present time. Barley exports fluctuated wildly, being 69,479 bushels in 1864–65, 1,128,923 bushels in 1879–80, and 433,005 bushels in 1882–83. Exports of other small grains and pulse have been very irregular, but show only a moderate increase, on the whole.

Tne most noteworthy item in the table is the fluctuation in the value of wheat flour. In 1820–21 it was a trifle over $4 per bbl.; in 1824–25 and 1829–30 it was about $5 per bbl.; in 1839–40 it was nearly $6; in 1854–55 it was over $8 per bbl. It reached the highest point indicated by these returns in 1864–65, over $10 per bbl.; had fallen below $7 in 1869–70, and below $6 in 1879–80. These of course are the average values, all grades of flour exported being included in the reckoning.

THE HELP QUESTION.

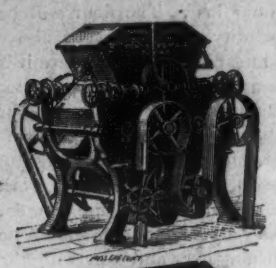
C. A. HUBBARD.

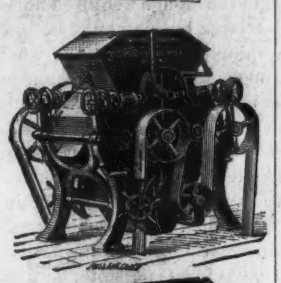
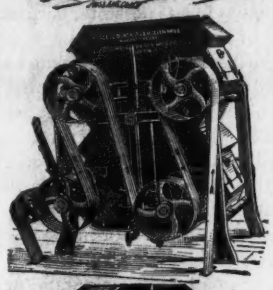
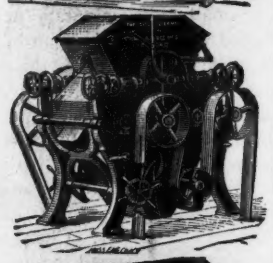
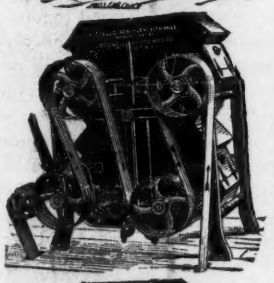
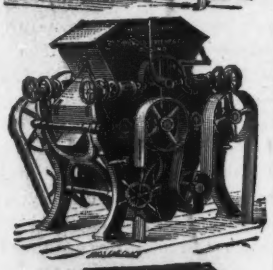
The apprentice system in mills, which fixes a time for learning to be a miller, is wrong in principle. This will apply, as I see it, to the learning of any trade. His intelligence and industry is the guide as to the time required to learn anything, not the calendar. A system which rewards intelligence, diligence, and industry is the successful one. The length of time a young man is in a mill has nothing to do with his efficiency. A manager who rewards his help according to the above mentioned method, will have little trouble in securing bright, intelligent men. There will be strife and industry where there is an understanding that the last may be first. On the other hand, where advancement is determined by succession in the order of employment, the oldest man getting the first place or by the ordinary system, where progress may be marked down in the almanac, the better class of help will seek a more liberal field. There is always a place for the most intelligent and industrious, because there is always the last man on the list who should make room for a better man. The management of a mill

THE SMUT OF WHEAT.

Prof. Bessey, of Iowa, writes to the N. Y. *Tribune* the following interesting account of the smut of wheat:

"The term smut is popularly applied to two quite different diseases of the wheat plant. In this country it generally means a disease which leaves the grain nearly its normal size and shape, but filled with a black dust of very disagreeable odor. It is a true disease, and like many of the diseases of animals and man, is the result of the growth of a parasitic plant. This wheat parasite consists of slender threads of microscopic size, which insinuate themselves between the cells and tissues of the young wheat plant, drawing therefrom the nutrient matters, and thereby reducing considerably the general vitality of the affected plant. As is well known, an ordinary plant consists of a great number of cells, each resembling a microscopic bladder, filled with protoplasm, water and some other substances. Were our eyes stronger the interior of a young wheat plant would appear not much unlike a barrel of potatoes, the potatoes representing the cells. The cells in the plant, much as the potatoes in the barrel, have empty or vacant spaces between one another. If we can imagine some slender plant growing up between the potatoes in the barrel and drawing nourishment from them, we will have a crude illustration of the manner in which the smut parasite attacks the wheat plant. When the wheat begins to head, the parasitic threads push their way into the young kernels, and there find an abundance of food. Here the parasite reaches its highest development, and produces an abundant crop of its minor black spores, to serve as seed for the next year's crop. A wheat kernel thus filled with spores is generally a little shorter and thicker than a healthy grain, and is always of a dark greenish color. Upon crushing it, a most offensive odor is given off by the black, dusty mass of the interior. If we put some of this black dust under a good microscope we shall see that it is made up of round bodies, the individual spores, which in these low plants answer the same purpose as the seeds of the higher ones. When the smutted grains are broken, as many are in threshing, the spores adhere to the tuft of hairs on the normal grains, and are thus sown with the latter. It has been demonstrated repeatedly that the disease is propagated by the spores, and that the sowing of seed containing smut spores is followed, under favorable conditions, by a new crop of smut. When we come to the question of prevention, it is at once evident that whatever will destroy the spores or eliminate them from the seed wheat will, in so far, lessen the liability to the disease. As the smutted grains are lighter than the normal ones, they can be floated out by throwing the seed wheat into water and violently agitating it. The common 'smut mills' of the miller may also be used, although in this case there is considerable danger of mechanical injury to the normal grains. In whatever manner the smutted grains are removed, it must be borne in mind that many spores adhere to those which are not smutted, and these spores must be removed or destroyed, or but little good will come from the operation. This last may be accomplished by the use of caustic lime, which may be applied in the dry state to the wetted wheat after the washing spoken of above. A solution of blue stone (copper sulphate) is also much used by English farmers for the purpose, and appears to destroy the life of the spores without injuring the wheat."



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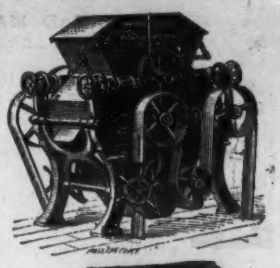

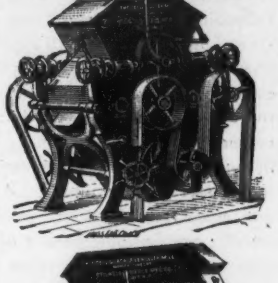

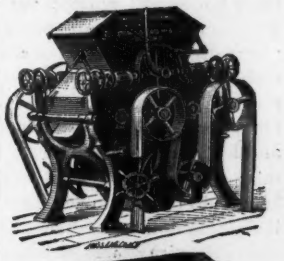
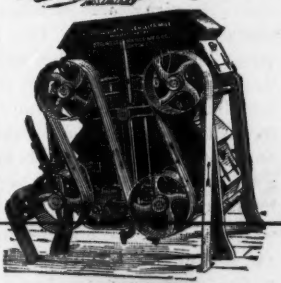
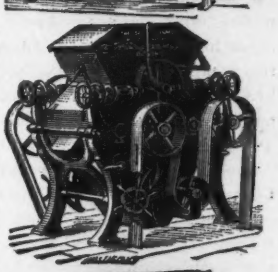
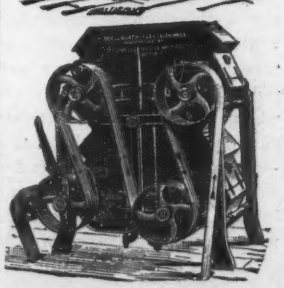

"BREAD MAKING."

FOLLOWING is a full synopsis of the paper of W. W. Jago, F. C. S., on "Bread Making," read before the convention of the National Association of Brittish and Irish millers at London, Oct. 26:

"Starch, of which the main body of the grain is composed, consists of extremely small, yet perfectly formed cells, each of which has an envelope of cellulose and is filled with fine particles of starch. The object of the miller is to thoroughly separate these from each other, at the same time carefully avoiding crushing the walls of any of the granules; for this purpose he modifies his methods and uses stones or rolls, or a combination of the two, according to the nature of the wheat. Starch, from a chemical point of view, is a compound of the three elements, carbon, oxygen and hydrogen; it is when dry a very stable body, that is, it has no tendency to rapid decomposition. It is a valuable foodstuff, and exists in the seed as a reservoir of material from which the growing plant derives its substance. Cellulose, which has the same percentage composition as starch, may be described as the wrapping material used in "making up" the different parts of the plant; it occurs in an almost pure state in cotton, wool or white blotting paper. The gum of wheat and other grains is the variety known as dextrin and again has the same percentage composition as starch; under the influence of heat starch is converted into dextrin; this conversion takes place much more rapidly in the presence of certain other substances to be hereafter referred to. The sugar of grain, which occurs in malt, and to a much larger extent in wort, that is, the infusion of malt in warm water, differs in composition from starch only in that it contains a little more hydrogen and oxygen. The variety of sugar is usually termed maltose, and, like dextrin, is a result of the decomposition of the starch of the grain.

"The next group of compounds which are of importance to us are the albuminoids, soluble and insoluble; these bodies will require our most careful attention. The composition of albuminoids is much more complex than that of starch; in addition to three elements, carbon, hydrogen and oxygen, there are also present nitrogen and sulphur. To the baker the division of albuminoids into the soluble and insoluble varieties is absolutely necessary in order to enable him to determine from them the value of the flour. When flour is kneaded in a stream of cold water the starch and soluble albuminoids are washed out, and there remains an insoluble sticky mass of matter to which the name of *gluten* has been given. This is almost entirely composed of insoluble albuminoids. It is the gluten of wheat flour that makes it so pre-eminently suitable for breadmaking; although barley is rich in total albuminoids this body is almost absent; consequently, instead of an elastic spongy bread, barley flour produces a heavy sodden mass. Other things being equal, the higher the percentage of gluten the more valuable is a wheat or flour. While the gluten is so much prized, the soluble albuminoids are the especial dread of both millers and bakers. Among those soluble nitrogenious bodies there is one found in the bran, to which the name of 'cerealin' has been given; this possesses in a remarkable degree the property of acting on starch and converting it into dextrin and other soluble bodies. The germ of wheat is also particularly active in this respect. It is perfectly natural that this should be so because the germ, being the future plant in embryo, requires to be able to act on and convert the starch as it requires it. It need scarcely be said that this action is objectionable to the miller; it is therefore prevented, as far as possible, in the flour by carefully separating both the bran and germ of the wheat in milling. The starch cells are more easily acted on when ruptured than when whole; consequently, the chemist would lay it down as an axiom of good milling —'remove all your bran and avoid crushing the starch cells.' For varieties of wheat capable of being manipulated by rollers that seems the method of working most likely to be successful.

"Let us compare for a moment the quantities of the various constituents of different kinds of wheat. The water is tolerably constant, but it may be taken as a general rule that wheats having a high percentage of water have the ratio of proportion of insoluble to soluble albuminoids low. We find that those wheats which are considered to be of superior quality have a high proportion of insoluble to soluble albuminoids. One of the most instructive comparisons is that between the same variety of wheat, the 'Poulard Bleu,' on a wet and dry year. The second sample naturally contains less moisture; the soluble albuminoids are lower, so also are the gum and sugar; the insoluble albuminoids are, on the other hand, much higher. Such a wheat will produce a stronger flour and a much whiter bread. Comparing together three analyses, by the same chemist, we find that the flour contains less albuminoids than the wheat, but not much, while the starch is far higher. The bran removes some albuminoids, but especially contains the cellulose, or what may be termed the 'woody fibre' of the grain. The vexed question of the relative nutritive values of whole meal and dressed flour may be here referred to. The advocates of the use of whole meal bread point to the greater amount of nitrogenous or flesh forming materials it contains; that amount is, however, only the difference between 11.0 and 10.5 per cent., while the quantity of starch—also a most important foodstuff—increases by five per cent. The ash is also diminished, and this, it should be remembered, represents the phosphates and other inorganic salts supplied to the body by bread. The importance of this diminution, is, however, very little, because these substances are always supplied in quantities, far more than necessary, by white bread and other ordinary articles of diet; this is proved by their presence in the waste secretions of the body. The great difference caused by the separation of bran is the removal of the cellulose, and this substance, it should be remembered, has just the same nutritive value as sawdust. I do not say, be it noticed, that bran has only the same nutritive value as sawdust. It is often urged that whole meal is the only natural form of flour; I am afraid that the word *natural* is here a platitude which may mean anything or nothing. The wheat berry is *naturally* that portion of the plant designed to propagate the species; its every condition is such that it may be compared to a charged shell with fuse attached; the slightest encouragement in the way of damp and warmth causes the germ to attack the other portions of the seed vigorously; this is an admirable arrangement for the reproduction of wheat, but it does not answer when we wish to keep the nutritive portions of the meal in a stable condition for our own consumption. In whole meal the germ and active converting agents of the grain are still present, and although their plant-producing power is destroyed they are still active, inasmuch as that they can still attack and decompose the starch, etc., of the grain. For this reason it becomes so necessary to remove the germ and the bran as completely as possible.

"Having reviewed the chemical nature of flour, I purpose next tracing the production of a loaf, and will endeavor to indicate what, according to my idea, should be the aim of the baker. First of all there is the bake-house; I can not urge too strongly that this important building should not be below the ground floor. In many existing baking establishments this may be impracticable; such being the case, let every effort be made to see that there is ample ventilation with pure fresh air. The drainage must be perfect, and by an efficient system of trapping all possibility of the entrance of sewer gas must be prevented. All corners, crevices, and hiding place of dupt must be sternly prohibited. A plenty of light should be obtained; there is nothing like it for preventing an accumilation of dirt. The walls should be perfectly whitewashed, or still better, faced with the white glazed porcelain tiles. The troughs, dough boards, and other utensils should be 'clean enough to eat from,' to which purpose it must never be forgotten that they are actually put. Concerning ovens, my prejudices are strongly in favor of those that are externally fired; in either case, whether internally or externally heated, I would have the stokehole out of the bakehouse; no coaldust or ashes should gnd their way there. With the bakehouse in good order and well conditioned, let us commence the procuction of our loaf. The flour will be let in in the proper quantity from the floor above through a 'shoot' into a kneading machine where it is mixed with the requisite quantity of yeast and water in order to make the 'sponge.' The portion of flour for this purpose should be of high quality, well cleaned from bran, and containing a high percentage of elastic gluten. In all mixing and kneading the work should be done without contact with the hands. Formerly it was necessary that all dough should be mixed by a process of turning over and over with the hands of the workmen. With every effort to be cleanly it is impossible to conduct this operation without leaving behind in the bread *epithelium* or the dead outer cells of the skin which are continually being shed. There is in addition the copious perspiration necessarily produced during such hard work, and which, from the position of the workman frequently finds its way into the kneading trough. There are, fortunately now in the market, machines simple in their action and not liable to get out of repair, which do this work thoroughly. The whole of the dough required for a day's baking of bread in a large business may be thus kneaded in a very few minutes. The sponge when made is set aside in troughs for a time varying from two to nine hours, at the end of which period its bulk will have enormously increased.

"Let us next consider what the changes ore that go on during this time. The tepid water used for making the sponge will have caused the soluble albuminoids in the flour to commence their action on the starch thereby converting it into dextrin and maltose. The temperature should be kept as low as possible, because with its increase the rate of production of these compounds is quickened. Further, the higher the temperature the greater is the quantity of dextrin formed; this body is particularly objectionable, because it produces very highly-colored decomposition products when the bread is heated in the oven. But another and more important change is that resulting from the action of the yeast. This substance, when viewed under the microscope, is seen to consist of a number of round or slightly oval (ovoid) cells; these cells are really plants of an extremely small and elementary description. They are, in good yeast, alive, and on being sown in what may be called suitable soil, thrive and multiply with extreme rapidity. When placed in either wort or dough, and kept at a temperature between 85° and 90° F., this growth goes on, and is accompanied by a splitting up of the malt sugar (maltose) into carbon dioxide gas (carbonic acid gas) and alcohol. They also attack the albuminoids, and assimilate some of the nitrogenious matter. Changes thus produced by living agents are classed together under the name of *fermentation*. The gas thus envolved is retained in the sponge by the elastic gluten, and gives it its characteristic vesicular structure. And here I may say something about bread turning sour. The particular living being, known as the yeast plant, is but one of many similar organisms. Others, during their growth and reproduction, yield acid and other characteristic products. It is, therefore, very necessary that pure yeast is employed, otherwise acid fermentation may go on, and thus produce sour bread. Yeast may be bad through impurities of this nature, or the yeast cells may be dead or old and feeble. The larger the quantity of soluble albuminoids in the flour the greater is the tendency of the dough to undergo these acid fermentations. Different bakers using different fiinds of flour will suit their method of sponging to the flour; those whose damp flours witn a high percentage of soluble albuminods will prefer a quick yeast and will shorten the time of sponging, as they thus lessen the quantity of dextrin and maltose produced. With such flours, and working with a slow yeast like English brewers yeast, and use of 'fruit' is often resorted to. This, as you all know, consists of well boiled potatoes; its advantage is that the starch of the potato is made up of larker cells, the walls of these break down more easily, and so the conversion of starch into carbon dioxide gas and alcohol is more rapid. Remembering that with properly selected flours it is possible to set up fermentation efficiently without the addition of foreign matters to the flour, it is a question of consideration whether under such cir-

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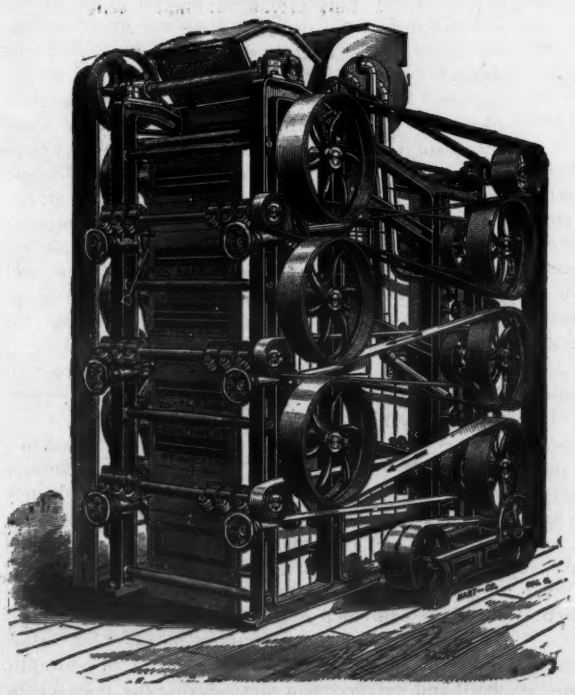

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THE MILLER'S VISION.

BY THOS. L. SMITH.

THE miller at his mill door stood,
And listened to a summer song;
The time passed idly with him then,
And every hour seemed drear and long.

The song was sweet as thrush could sing
Upon its happiest day in June;
It lightly charmed the miller's heart,
And waked a vision with the tune.

The miller looked across the wheat,
That waist-deep filled a goodly field;
A heaven-fair goddess there he saw—
His heart was dumb, his lips were sealed.

For Ceres came with lightsome step
Across the field of golden wheat,
That suppliant bent before its queen
And kissed the sandals of her feet.

The heat waves quivered o'er the shrubs
That grew beside the zigzag fence;
The kine stood in the pebbly brook,
Where elm trees' shade was cool and dense.

A summer calm hung o'er the hills
And slumbered in the sunny vales;
The timid hare crept 'neath the vines,
And 'mid the red-top lurked the quails.

But Ceres charmed the miller more
Than sweetest songs of summer birds;
She prophesied grain-burdened fields,
And cheered his heart with hopeful words:

"O miller! grinder of the grain—
The golden grain the sun gives birth—
What argosies shall bear to thee
The bounties of our mother earth!

"For thee shall grow the golden wheat,
The maize unfurl its bannered leaves,
And ripening barley, oats and rye
Shall cumber groaning fields with sheaves.

"Take heart," in cheerful tones she said,
"Thy work it is a nobler one
Than his who bravely wields the sword
'Mid hurtling shell and roll of drum."

And then she quickly hied away,
With lips disparted, rare and sweet,
Bright-eyed, fair lilies in her hair,
And golden sandals on her feet.

* * * * * *

The miller plies his task with cheer,
And sings most blithesomely a glee,
With hastening feet the hours speed by,
And sadness seldom doth he see;

And while each garner groans with grain,
And Christmas-tide is full of cheer,
None happier greet the festal day—
The merriest day of all the year.

PRESERVATION OF GRAIN AND FLOUR.

BY HENRY B. DAWSON.

A great deal of attention is given to the construction of granaries for wheat in France, because the preservation of this grain depends in a great measure on the manner in which it is stored.

The French millers are averse to placing grain in stores on the ground floor, but prefer large store rooms, well aired, on the second or third floors. The walls should be very thick, and constructed of freestone, and attention should be given to the fact that the walls should not be coated with plaster, which would be likely to attract dampness from the atmosphere, peel off, and soon become loosened, leaving in its place a very copious white foam, or moss, which has been recognized as nitrate of lime. These walls, to be protected from dampness, ought to be coated internally with a cement made of two parts of good mortar, two of well baked bricks in powder, and one of white marble, pulverized. If the quality of the plaster is good, once laid on, and allowed to dry, stucco can then be applied, the properties of which must be such that the plaster will resist the combined action of dampness and the rigors of a northern climate.

Wheat granaries should be very spacious, and carefully paved with varnished bricks, or if not, with good bricks, well baked and thick, but good, well seasoned boards will be found good flooring. The boards must be well seasoned so as not to impart an odor to the grain. Each floor ought to be allowed several openings about three inches in diameter to allow the wheat to pass from one story to another to ventilate it. M. De Pertis, the celebrated French grain merchant, says that the best flooring is that which is called *parquet a la capercine*, and without spaces, because it does not permit vermin to nestle underneath. The windows should be spacious and of northern exposure, which will allow the circulation of dry, cool air. In order to have a free circulation, the windows on the south should be small and high, and provided with wooden shutters, so that they can be closed when the wind blows from that direction. Granaries should be placed, if possible, on high ground, so as to give them a free circulation, and they should be remote from rivers or marshes.

The granaries of Paris have been pointed to as models in their construction, but they are far from it. M. de la Croix, whose name must be familiar as a prominent miller and inventor, says: "The city of Paris, so rich in all kinds of establishments, has not a granary for preservation, for we cannot call by such name the granaries situated at the arsenal conceived by Napoleon. It seems that in making those granaries he had more of an object to make a demonstration to tranquilize the unquiet imagination of the people, than to invent an establishment of actual usefulness." Despite this assertion, there are those who regard them as splendid monuments of public usefulness.

We have scarcely given attention enough to the subject of granaries and storage, and as American sour flour forms one of the items of quotation in an English paper, the subject may be of sufficient importance to us to discuss.

Of course this sour flour must have been either damaged by water or had become heated from an excess of moisture in it. Much of the flour is damaged on the lakes or canals, and with care this should be entirely prevented. The carrier is not to blame where the flour is heated from its own moisture, as the same thing will happen to it when in store.

Chemical analysis shows that not only wheat, but all other grains, as well as flour or meal, when under the influence of water, air, and warmth, are either partially or entirely changed, so that the ultimate principles (oxygen, hydrogen, carbon, and in some cases nitrogen) combine in new proportions, and of course form new compounds. To this process of decomposition the general name of fermentation has been given, and it differs according to the substance to be acted upon, and the circumstances.

Grain is different from most articles of commerce. Wine will increase in value with age. But put a load of grain away in a granary and it suffers in value from the ravages of animals, from germination, from decomposition, and from the expense of handling. When grain or flour is intended to be stored for any length of time, the honey bee should be imitated, and the article to be stored should be hermetically sealed up. We see meat, fish and vegetables stored up in cans, and yet wheat is thrown in a heap together and allowed to germinate and rot without resorting to any artificial means of preservation.

In Canada it is said by travelers that the Indians have a means of preserving their grain by selecting dry places called caches, depositing the grain to be preserved, and then covering it over. In some parts of South America the natives use the skin of an ox taken off entire as a public granary. The legs and neck being tied around it, earth is jammed in tightly from a hole in the back while suspended between posts. When dried to a state of parchment the earth is taken out, and the bloated bag is filled with grain, which is thus kept air and vermin proof.

Close granaries have been recommended as being cheap of construction, and may be placed below as well as above ground. They might be constructed of iron, like gasometer tanks, or of brick and cement, like cisterns or silos. It is only required that they should be air and water tight. They could be constructed as large iron tanks sunk in the earth, with the top domed over, and an air pump attached for the purpose of exhausting the air after the grain had been discharged into them. See the advantage that would accrue if a cargo of grain arrived containing weevil and other vermin, and in a state of germination. The air pump could be set to work, and when the air would be exhausted the germination would cease and all animal functions would be immediately suspended. This principle could be applied to grain cars and vessels carrying grain. It would be a great advantage to the latter in making them air tight and more buoyant. Hot air could also be pumped in to dry the grain when in a damp state. These plans may be feasible or not, but there is one thing quite certain, that moisture should be excluded from grain and extracted if in it, by some means of drying, so as to render preservation certain, for, being divested of internal moisture, vermin cannot exist. These facts should not be overlooked in the preparation of flour for shipment, as large quantities are injured annually for want of sufficient care in drying the grain, before being reduced to flour.

FOOD VALUE OF WHEAT FLOUR.

The nutritive value of wheat flour depends upon the quantities of gluten, sugar, starch, and phosphate of lime in its composition, says Pappenheim's *Mueller-Zeitung*, and the reason why it is preferred for the making of bread above all other flours is because wheat, as compared with other grains, contains the most phosphate of lime and gluten. The following rules will serve for a close determination of the above named ingredients of wheat flour, and any person can work out the analyses, even though he be not a professional chemist:

1. Take 100 grammes of flour (one gramme equals 15.432 grains avoirdupois) add sufficient water, and make into a paste. Let it stand an hour, and then knead it lightly, adding water continuously until all the starch is washed out. The remaining portion—the gluten—is then dried and laid aside on a thick layer of blotting paper.

2. Take the resulting starch of the above operation, place it in a large pan, and pour water over it until it is precipitated to the bottom. So soon as this occurs, pour off the clear water and place the precipitated starch on a filter of prepared paper which rests in a tunnel, so that in the pan there remains no starch visible. The pure starch can then easily be taken from the filter.

3. Take the water which was poured off the starch, and also that which dripped from the filter through the tunnel, and evaporate it. Again place the substance left on a filter till the water therein entirely disappears, and the resulting material will be pure albumen. Take the filtered water and once more evaporate it, but this time to only the consistency of syrup, and add thereto ten times its weight of alcohol; then set it away for a time, and again filter it, not forgetting to wash the filter paper beforehand in alcohol, so that it may readily operate. That which remains on the filter paper is phosphate of lime and gum. Through soaking in water, filtration and evaporation, these two substances can be separated, for the first is soluble in water and the latter is not.

4. Take the alcohol and evaporate or distil it. That which remains is sugar. The operation is performed as above.

5. The resultant substances should be dried in a moderately warm place. The weight of the albumen should be compared with that of the gluten, for they both possess nutritive qualities of nearly equal value, and it is true that many affirm that albumen is but another kind of gluten. Since 100 parts (by weight) of flour were taken at the beginning of these operations, the combined weight of the individual food ingredients forms the percentage of nutritive value. Before each operation the filter should be carefully dried and weighed, and must, during the analyses, be kept at the same temperature as when, farther on, the resultant substances are being dried, otherwise it would, for example on becoming more heated, lose in weight and moisture.

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THE SOUTHERN EXPOSITION,

AT LOUISVILLE, KENTUCKY, 1883.

The Board of Directors has confirmed the following report of the Jurors on awards for the Southern Exposition of 1883, and decreed an award in conformity therewith as follows:

REPORT ON AWARDS:

Product, BUHR MILLS.

Exhibitor, MUNSON BROTHERS,

UTICA, NEW YORK.

Award, a Medal for BEST BUHR MILL.

The award as made above is now in the hands of the engraver, and will be delivered as soon as completed.

J. M. WRIGHT,
General Manager.

Louisville, Ky., Nov. 26, 1883.

SHAKESPEARIAN GLEANINGS.

THOS. L. SMITH.

SHAKESPEARE—the "immortal bard of Avon"—is the most illustrious writer of any age. Many of his sayings are current coin in our every day speech, and will be so long as English is a living tongue. Human nature was to him an open book, writ in plain characters, and upon what phase of it did he not dwell! His dramas are full to the brim of ripe thoughts put into the mouths of an almost endless number of dissimilar characters, and may be likened to a mirror wherein humanity may view itself, and turn away gratified or displeased with the resemblance. He looked upon "all sorts and conditions of men," and among them did not forget the millers or bakers, nor those who handle grain and flour. Many times he speaks of them and their work in literal terms, and as often creates figures of speech therefrom. That the millers and bakers and their friends may see at a glance what Shakespeare did for them, and what things he said in their way, here follow in due order all the sayings (grouped doubtless for the first time) on the above mentioned themes, that diligent search through his plays has revealed :*

THE TEMPEST.

Thou didst vent thy groans as fast as mill wheels strike.—*Prospero.* (1, ii).

Ceres, most bounteous lady, thy rich leas of wheat, rye, barley, vetches, oats and pease, * * * the queen o' the sky * * * bids thee leave these, and with her sovereign grace, here on this grass plot, in this very place, to come and sport.—*Iris.* (4, i.)

Barns and garners never empty. * * * Spring come to you at the farthest, in the very end of harvest! Scarcity and want shall shun you; Ceres' blessing so is on you.—*Ceres.* (4, i.)

You sun-burn'd sicklemen, of August weary, come hither from the furrow, and be merry; * * * your rye-straw hats put on.—*Iris.* (4, i.)

MERRY WIVES OF WINDSOR.

I wash, wring, brew, bake.—*Mistress Quickly.* (1,iv.)

Go fetch me a quart of sack; put a toast in't.—*Sir John Falstaff.* (3, v.)

MEASURE FOR MEASURE.

Lord Angelo * * * scarce confesses * * * that his appetite is more to bread than stone.—*Vincentio.* (1, iv.)

Come, let us go; our corn's to reap.—*Vincentio.* (4, i.)

I am fain to dine and sup with water and bran.—*Lucio.* (4, iii.)

COMEDY OF ERRORS.

Your cake here is warm within; you stand here in the cold.—*Dromio of Ephesus.* (3, 1.)

MUCH ADO ABOUT NOTHING.

An honest soul, i' faith, sir; by my troth he is, as ever broke bread.—*Dogberry.* (3, iv.)

LOVE'S LABOUR'S LOST.

He weeds the corn, and still lets go the weeding.—*Longaville.* (1, i.)

Sir, I will pronounce your sentence; you shall fast a week with bran and water.—*Ferdinand.* (1, i.)

More sacks to the mill.—*Biron.* (4, iii.)

Scarce shew a harvest of their heavy toil.—*Biron.* (4, iii.)

Sow'd cockle, reap'd no corn; and justice always whirls in equal measure.—*Biron.* (4, iii.)

An I had but one penny in the world, thou shouldst have it to buy gingerbread.—*Costard.* (5, i.)

A MID-SUMMER NIGHT'S DREAM.

Your tongue's sweet air, more tuneable than lark to shepherd's ear, when wheat is green.—*Helena.* (1, i.).

Your straw-colored beard.—*Bottom.* (1, ii.)

And in the shape of Corin sat all day, playing on pipes of corn.—*Titania.* (2, ii.)

The green corn had rotted ere his youth attained a beard.—*Titania.* (2, ii.)

Rude mechanicals, that work for bread.—*Puck.* (3, i.)

THE MERCHANT OF VENICE.

His reasons are as two grains of wheat hid in two bushels of chaff.—*Bassanio.* (1, i.)

AS YOU LIKE IT.

A certain knight, that swore by his honor they were good pancakes: * * * now, I'll stand to it, the pancakes were naught. * * * No more was this knight swearing by his honor, for he never had any; or if he had, he had sworn it away, before he ever saw those pancakes.—*Touchstone.* (2,i.)

And his kissing is as full of sanctity as the touch of holy bread.—*Rosalind.* (3. iv.)

I shall think it a most plenteous crop to glean the broken ears after the man that the main harvest reaps.—*Sylvius.* (3, v.)

It was a lover and his lass, * * * that o'er the green cornfield did pass, * * * between the acres of the rye.—*Pages.* (5, iii.)

TAMING OF THE SHREW.

Our cake's dough on both sides.—*Gremio.* (1, i.)

ALL'S WELL THAT ENDS WELL.

Your date is better in your pie and your porridge, than in your cheek.—*Parolles.* (1, i.)

As fit * * * as a pancake for Shrove Tuesday.—*Clown.* (2, ii.)

THE TWELFTH NIGHT.

Dost thou think, because thou art virtuous, there shall be no more cakes and ale?—*Sir Toby Belch.* (2, iii.)

WINTER'S TALE.

No! life, I prize it not a straw.—*Hermione.* (3, ii.)

Or thou go'st to the grange or mill.—*Mopsa.* (4, iii.)

Scared my choughs from the chaff.—*Autolycus.* (4, iii.)

KING JOHN.

For even the breath of what I mean to speak shall blow each dust, each straw * * * out of the path.—*Cardinal Pandulph.* (3, iv.)

KING RICHARD II.

Eating the bitter bread of banishment.—*Bolingbroke.* (3, i.)

We'll make foul weather with despised tears; our sighs and they shall lodge the summer corn.—*King Richard.* (3, iii.)

That jade hath eat bread from my royal hand.—*King Richard.* (5. iv.)

FIRST PART OF KING HENRY IV.

I had rather live with cheese and garlic in a windmill, far, than feed on cates and have him talk to me.—*Hotspur.* (3. 1.)

And such protest of pepper-gingerbread.—*Hotspur.* (3. 1.)

I pressed me none but such toasts.—*Sir John Falstaff.* (4, ii.)

SECOND PART OF KING HENRY IV.

He lives upon mouldy stewed prunes and dried cakes.—*Doll Tear-Sheet.* (2. iv.)

As rheumatic as two dry toasts.—*Hostess.* (2, iv.)

To dispraise me and call me pantler, and bread-chipper.—*Prince Henry.* (2, iv.)

O, Sir John, do you remember since we lay all night in the windmill in Saint George's fields?—*Shallow.* (3, ii.)

We shall be winnowed with so rough a wind that even our corn shall seem as light as chaff.—*Mowbray.* (4, ii.)

Sir, shall we sow the headland with wheat?—*Davy.* With red wheat, Davy.—*Shallow.* (5, i.)

I will be the man yet that shall make you great.—*Sir John Falstaff.* I can not perceive how; unless you give me your doublet and stuff me out with straw.—*Shallow.* (5, v.)

KING HENRY V.

Trust none; for oaths are straws, men's faiths are wafer cakes, and hold-fast is the only dog.—*Pistol.* (2, iii.)

Can sodden water, * * * their barley broth, decoct their blood to such valiant heat?—*Constable.* (3, v.)

FIRT PART OF KING HENRY VI.

Talk like the vulgar sort of market men, that come to gather money for their corn.—*La Pucelle; i. e., Joan of Arc.* (3, ii.)

Poor market folks, that come to sell their corn.—*La Pucelle.* (3, ii.)

Good morrow, gallants! want ye corn for bread?—*La Pucelle.* (3, ii.)

I trust, ere long, to choke thee with thine own, and make thee curse the harvest of that corn.—*Burgundy.* (3, ii.)

SECOND PART OF KING HENRY VI.

Why droops my lord, like over-ripen'd corn, laying the head at Ceres' plenteous load?—*Eleanor.* (1, ii.)

His well proportion'd beard made rough and rugged, like to the summer's corn by tempest lodged.—*Warwick.* (3, ii.)

There shall be in England seven half-penny loaves sold for a penny.—*Jack Cade.* (4, ii.)

THIRD PART OF KING HENRY VI.

Like a lazy thresher with a flail.—*Warwick.* (2, i.)

KING RICHARD III.

Bid Gloster think on this, and he will weep.—*Clarence.* Ay, millstones; as he lesson'd us to weep.—*First Murderer.* * * * O, do not slander him, for he is kind.—*Clarence.* Right; as snow in harvest.—*First Murderer.* (1, iv.)

They say my uncle grew so fast that he could gnaw a crust at two hours old.—*Archbishop of York.* (2, iv.)

I can counterfeit the deep tragedian; speak and look back, * * * tremble and start at wagging of a straw.—*Buckingham.* (3, v.)

To reap the harvest of perpetual peace by this one bloody trial of sharp war.—*Richmond.* (5, ii.)

KING HENRY VIII.

Do you look for ale and cakes here, you rude rascals?—*Porter.* (5, iii.)

Her foes shake like a field of beaten corn.—*Cranmer.* (5, iv.)

TROILUS AND CRESSIDA.

He that will have a cake out of the wheat must tarry the grinding.—*Pandarus.* Have I not tarried?—*Troilus.* Ay, the grinding; but you must tarry the bolting.—*Pandarus.* Have I not tarried?—*Troilus.* Ay, the bolting; but you must tarry the leavening.—*Pandarus.* Still have I tarried.—*Troilus.* Ay, to the leavening: but here's yet in the word "hereafter," the kneading, the making of the cake, the heating of the oven, and the baking; nay, you must stay the cooling too, or you may chance to burn your lips.—*Pandarus.* (1, i.)

But there was much laughing!—Queen Hecuba laughed that her eyes run o'er.—*Pandarus.* With millstones.—*Cressida.* (1, ii.)

Chaff and bran, chaff and bran!—*Pandarus.* (1, ii.)

And then to be baked with no date in the pie.—*Cressida.* (1, ii.)

Speak then, thou unsalted leaven.—*Ajax.* (2, i.)

He would pun thee into shivers with his fist, as a sailor breaks a biscuit.—*Thersites.* (2, i.)

And there the strawy Greeks, ripe for his edge, fall down before him, like the mower's swath.—*Nestor.* (5, v.)

CORIOLANUS.

The gods know I speak this in hunger for bread.—*Citizen.* (1, i.)

All from me do back receive the flour of all, and leave me but the bran.—*Menenius Agrippa.* (1, i.)

Corn at their own rates.—*Menenius Agrippa.* (1,i.)

They said * * * that the gods sent not corn for the rich men only.—*Caius Marcius.* (1, i.)

The Volsces have much corn; take these rats thither to gnaw their garners.—*Caius Marcius.* (1, i.)

When corn was given them gratis.—*Brutus.* (3, i.)

Tell me of corn!—*Coriolanus.* (3, i.)

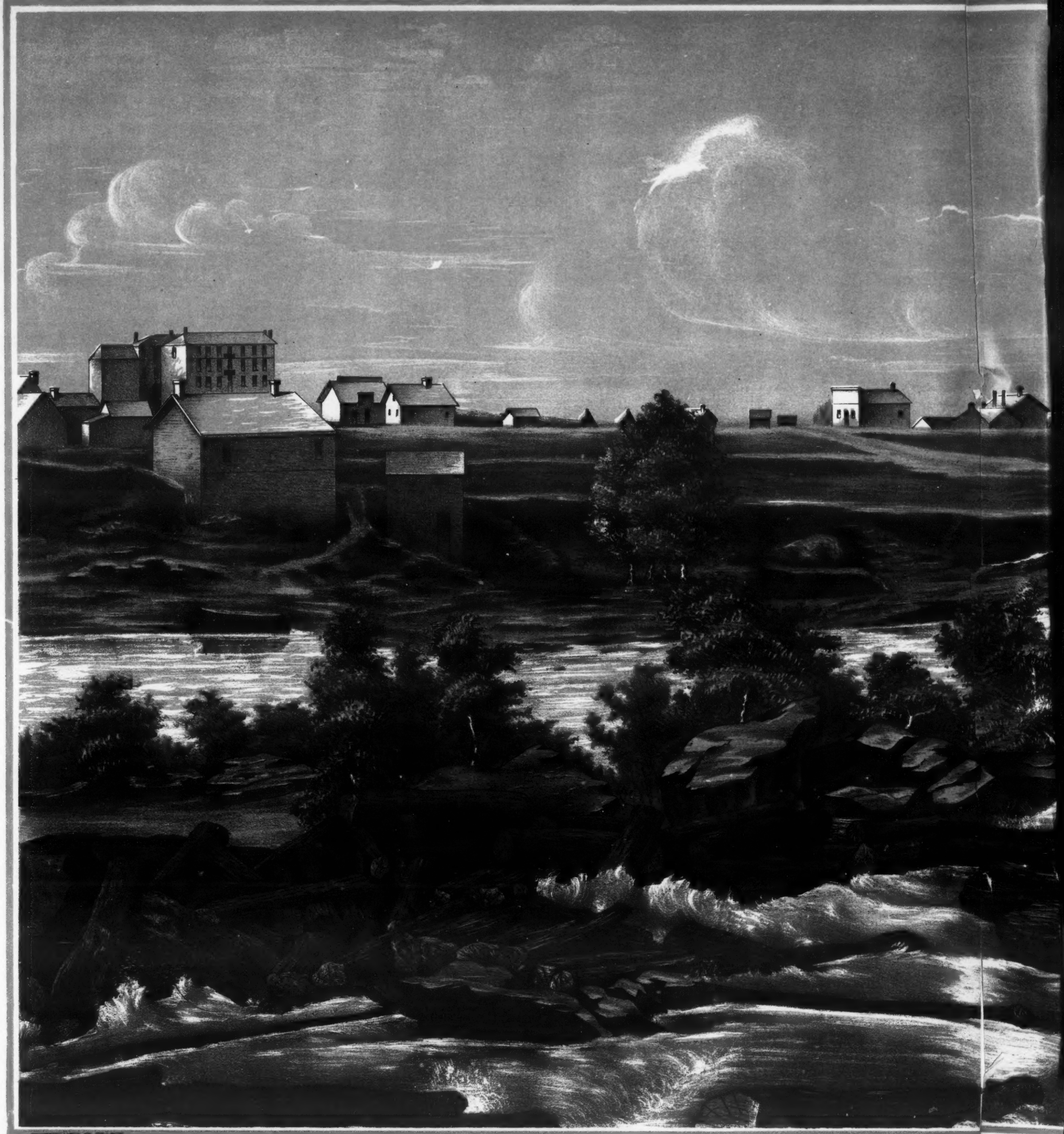
The cockle of rebellion, insolence, sedition.—*Coriolanus.* (3, i.)

To give forth the corn o' the storehouse gratis.—*Coriolanus.* (3, i.)

This kind of service did not deserve corn gratis.—*Coriolanus.* (3, i.)

Is ill school'd in bolted language; meal and bran together he throws without distinction.—*Menenius Agrippa.* (3, i.)

* Each quotation is followed by the name of the character uttering it, and in parenthesis following are the act and scene in which the words occur; thus, for example, (2, iii.) should be read "Act two, scene three." In "The Two Gentlemen of Verona" and "Othello" nothing on milling or allied topics is to be found. There are 102 quotations in this collection.

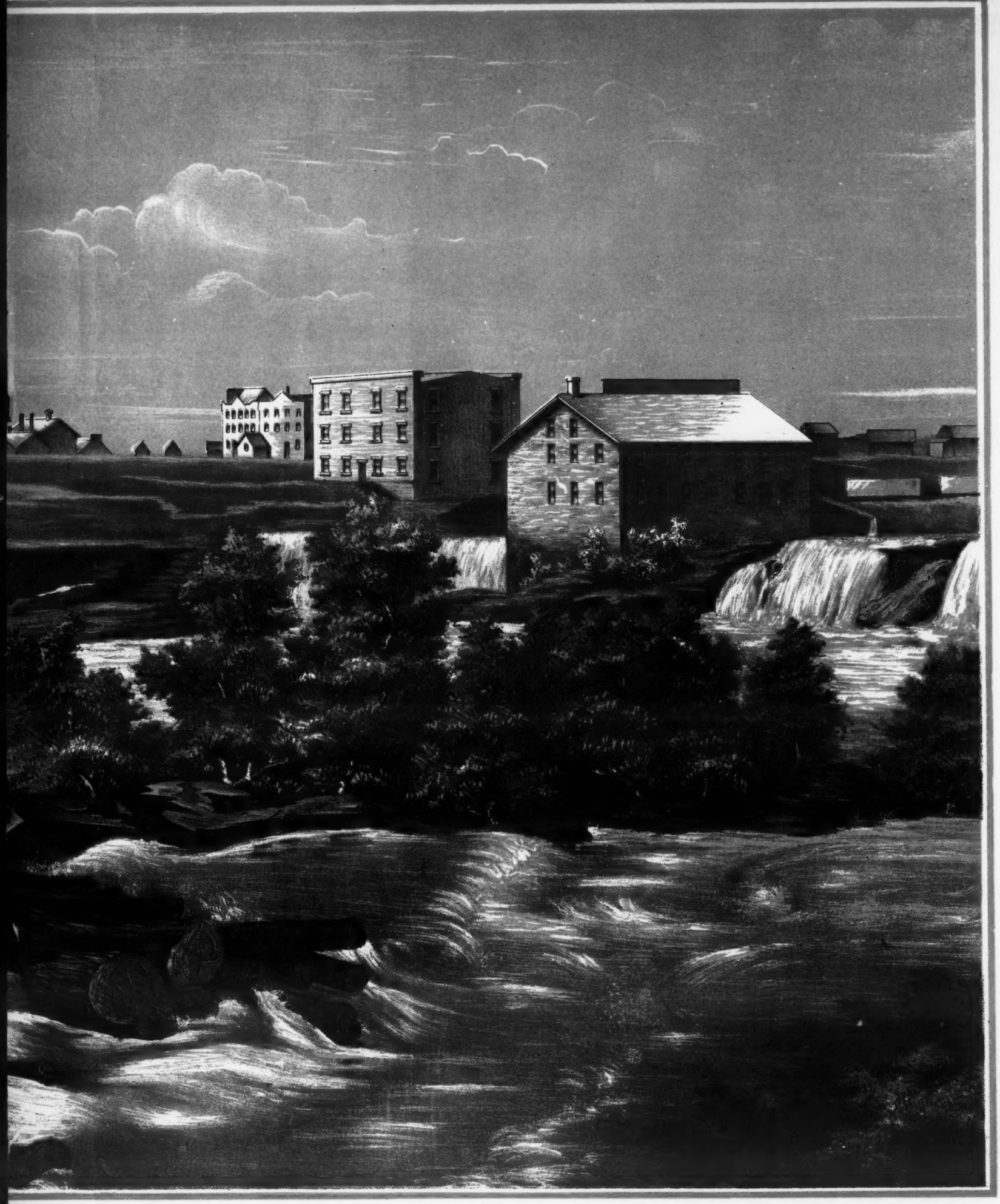


Cataract House.
City Mill.

W. E. Forrest's Livery Stable.
H. E. Butler's Shop.
Government Mill, Erected 1821.

W. D. Washburne's Law Office.

MINNEAPOLIS MILLING DIST



G DISTRICT IN 1859.

I offered to awaken his regard for his private friends: his answer to me was, he could not stay to pick them in a pile of noisome, musty chaff: he said 'twas folly, for one poor grain or two.—*Menenius Agrippa.* For one poor grain or two? I am one of those; his mother, wife, his child, and this brave fellow too, we are the grains: you are the musty chaff.—*Cominius.* (5, i.)

TITUS ANDRONICUS.

More water glideth by the mill than wots the miller of; and easy it is of a cut loaf to steal a shive.—*Demetrius.* (2, i.)

First, thrash the corn, then, after, burn the straw.—*Demetrius.* (2, iii.)

Why, there they are both, baked in that pie.—*Titus Andronicus.* (5, iii.)

O, let me teach you how to knit again this scattered corn into one mutual sheaf.—*Marcus Andronicus.* (5, iii.)

ROMEO AND JULIET.

God's bread! it makes me mad: day, night, late, early, waking or sleeping, still my care hath been to have her match'd.—*Capulet.* (3, v.)

TIMON OF ATHENS.

Sits next him now, parts bread with him.—*Apemantus.* (1, iii.)

JULIUS CÆSAR.

Those that with haste will make a mighty fire, begin it with weak straws.—*Casca.* (1, iii.)

MACBETH.

Though bladed corn be lodged.—*Macbeth.* (4, i.)

HAMLET, PRINCE OF DENMARK.

As peace should still her wheaten garlands wear.—*Hamlet.* (5, ii.)

KING LEAR.

He that keeps nor crust nor crumb, weary of all, shall want some.—*Fool.* (1, iv.)

This is the foul fiend Flibbertigibbet: he begins at curfew, and walks till the first cock; he gives the web and the pin, squints the eye, and makes the hare-lip; mildews the white wheat.—*Edgar.* (3, iv.)

Thy sheep be in the corn.—*Edgar.* (3, vi.)

And all the idle weeds that grow in our sustaining corn.—*Cordelia.* (4, iv.)

I can not draw a cart, nor eat dried oats.—*Officer.* (5, iii.)

ANTONY AND CLEOPATRA.

Then, to send measures of wheat to Rome.—*Pompey.* (2, vi.)

CYMBELINE.

Nature hath meal and bran, contempt and grace.—*Belarius.* (4, ii.)

PERICLES, PRINCESS OF TYRE.

Those palates, who, not yet two summers younger, must have inventions to delight the taste, would now be glad of bread, and beg for it.—*Cleon.* (1, iv.)

And these our ships * * * are stored with corn to make your needy bread.—*Cleon.* (1, iv.)

Your grace, that fed my country with your corn.—*Cleon.* (3, iii.)

THE MILLING FUTURE.

FROM A PECUNIARY POINT OF VIEW.

In order to form a correct idea of, and speak intelligently on a subject of any kind, it is necessary that one should be familiar with all the details connected with it. It must be admitted by all those engaged in the manufacture of flour, (as I will confine myself exclusively to this branch of industry) that the profits occurring from it are not so large or satisfactory as they were some few years ago, or, to be more explicit, margins arising from the manufacture of flour have been gradually decreasing since 1878. This decline has been much more perceptible in the last three years, until to-day, to use the expression of a prominent miller, "the business is almost run into the ground. Though I do not altogether acquiesce in the opinion above expressed, still there is a reasonable amount of truth in it. Milling, like all other branches of industry, is meeting with closer competition, and will continue to do so, and it is unreasonable for any one to expect otherwise. The manufacture of flour opened an avenue for the accumulation of wealth. Large numbers naturally engaged in it, until to-day it stands on a level with all other branches of manufacture. In conversation with a large number of millers throughout the country, the general opinion seems to be that there is no other course to pursue but to give closer attention to the details of manufacture, use nothing but the best machinery and enough of it, and employ none but skilled operatives to handle the same. These three things are inseparable, in fact indispensable, and are the corner stones on which successful milling rests. They have been sadly neglected in the past by a large number of millers. Many of them seemed to think that when the machinery is placed in position, nothing more is necessary in order to produce a good article of flour. But it is almost useless to say that those impressions are erroneous. I care not how complete a mill may be in the quality and quantity of machinery used, or how thoroughly the system of separation is carried out, unless it be presided over by operatives who are capable, and who bring judgment to bear upon every adjustment and change made, the mill can not produce good results. In speaking of results, I do not simply mean a good article of flour, or close yield, or a high percentage of patent flour, but of all these combined. Millers are beginning to realize this and every day it becomes more apparent. If we carefully survey the matter, and notice the large number of mills now building, and the radical changes made in others already in operation, it will be apparent to the most careless observer that they are all striving to reach the same standard as regards the products of their respective mills. There is but one reason which can be assigned for this desire to be ahead, and that is a compulsory one. The products of our most successful mills today are shipped to eastern markets and large quantities are exported which brings the flour in competition with the products of the world. Every barrel is sold on its merits. Supply and demand regulate prices. Reputation has very little, if any influence. A standard exists and all commodities are judged by it. American millers can make as good an article of flour as can be made anywhere. They have the machinery and ability, if they feel disposed to exercise it, and this they will undoubtedly be called upon to do. We must find an outlet for our surplus. It can not be consumed at home. It would be policy, and to the interests of our millers to more thoroughly cultivate our export trade and ship only such grades of flour abroad as meet with favor and ready sale. When we consider the large number of mills in this country, and the daily additions, it is a matter which should receive close attention, and one which we can not afford to pass unnoticed. For this there is no remedy. It will find its own level. To return a moment to our export trade, we must not forget that the millers of the United Kingdom are awakening to the fact that in order to compete with us, radical changes are necessary and they have earnestly set about to accomplish them. It must also be remembered that they are no longer entirely dependent on us for their wheat supply. India is destined to become a formidable rival of the United States as an exporter of wheat in the United Kingdom. The annual value of the export and import trade of India during the last thirty years has been steadily progressing, and demonstrates that the extension of railway communication, while stimulating exports in the first place, has always been attended with an increased demand for other products. In 1852, the date of the commencement of the construction of railways in India, the exports and imports of India amounted in all to £32,422,100, whereas in 1882-3, when there were upwards of 10,000 miles of railway open, they amounted to £132,585,850.

These results have been obtained at a time while comparatively high rates for the carriage of grain in particular have prevailed, and if proper facilities were given the people of that country, they could easily supply the United Kingdom with the whole of its annual import of wheat. The total production of wheat in India is not less than 40,000,000 quarters, while the average annual import from all countries into the United Kingdom is only about 11,000,000 quarters. The total consumption of wheat in India is not great, and yet of the large production just quoted, only a small portion is in ordinary times exported, owing to the difficulty experienced in transporting it to the seaboard. Considering the fact that the rates for the carriage of grain on the East India railways are about three times higher than those charged in this country, it is not at all surprising that India at present only succeeds in carrying off a portion of the English wheat trade, even at times when prices are ruling the highest. In the face of these facts the millers of this country cannot afford to let this matter pass unnoticed. At the present time the supply exceeds the demand, and when we consider that this state of things exists when our mills are running but half capacity, it must be plain to those whose interests are at stake that something must be done to remedy it. We cannot afford to let our large and thoroughly equipped establishments remain idle, and to obviate this, our foreign trade must be looked after. I do not think it possible to state satisfactorily at present how this is to be accomplished. One thing is certain, we must raise our standard of wheat grades and pay less money for them. Wheat is proportionately too high, compared with flour. This is the greatest barrier in the way of successful and remunerative foreign trade. Another is the grades of flour we have shipped abroad. They have either been a high grade, or a low one, neither of which can be justly considered adapted to that trade. Margins are gradually growing closer daily, eastern markets remain over-stocked, and there is but one way to get over it. That is by shipping our surplus abroad, and this can only be accomplished by a reduction in cost of the raw material and closer attention to the details of manufacture.

WHEAT AND OTHER FIGURES.

The wealth of the United States is growing at a rate which seems almost incredible. Leaving out the vast coal, iron and stock interests, the subjoined table shows a crude estimate of the value of this year's crop:

Cotton	$300,000,000	Hay	$300,000,000
Wheat	400,000,000	Wool	100,000,000
Corn	800,000,000	Gold	42,000,000
Oats	300,000,000	Silver	30,000,000
Tobacco	50,000,000		
Total			$2,322,000,000

This would pay the national debt and leave a large surplus. At the same time the necessaries of life are almost as cheap as at any time in the history of the country, while wages are higher by far than before the war.

The latest reports on wheat and corn make it probable that the wheat crop of 1883 will aggregate about 400,000,000 bus., and the corn crop about 1,500,000,000 bus. Oats will be a large crop.

Much has been published lately about the shortage of the European wheat and rye crops, on the authority of the Vienna congress, but parties well versed in the foreign grain trade do not place confidence in its estimates, it being composed of self-constituted members connected with the grain trade, and who are more or less influenced by personal interests. Well advised parties, while conceding a shortage, think it has been over estimated and refer to the present condition of the markets as evidence of it.

The wheat crop of England this year is 2,600,000 acres, that of America 39,000,000 acres. Her oat crop is 2,975,000 acres, ours about 30,000,000 acres. We have 64,000,000 acres of corn, of which crop none is grown in Great Britain. She has 6,000,000 head of cattle and 25,000,000 sheep. We have 30,000,000 cattle and 50,000,000 sheep. She has a population of 35,000,000 to feed, while we probably have 55,000,000. She is always short of food, we always with a surplus to supply not only her deficiency, but that of continental Europe. But Great Britain raises on an average of 26 bus. of wheat to the acre, we an average of 12 bus. Were our average production per acre as great as hers, we should this year have harvested a wheat crop of over 1,000,000,000 bus. instead of a little more than 400,000,000. Her cattle and sheep average much better in quality, taken as a whole than ours, while in horses and hogs it is doubtful if she possesses any advantage over ours. But her farmers pay an average of $10 to $15 per acre per annum for the farms they occupy. Ours largely own their own farms and call no man landlord.

ANCIENT WORKS ON MILLING.

IT may be of some interest to millers at this time to read the titles of the following treatises on milling, many of which can be seen at the Astor library, in New York city. The names are arranged in the order of their separate dates.

Kuenstliche Abriss Allerhand, Wasser, Wind, Ross, und hand-Muehlen, etc., Von Jacob de Stradd a. Rosberg, 1617.

Georg. Chris. Luerner Machina torentica nova; oder Beschreibung der neu erfundenen Drehmahlen, 1661.

Theatrum Machinarum Novum; das ist, neu vermehrter Schauplatz der Mechanischen Kuenste handelt von Allerhand, Wasser, Wind, Ross, Gewicht und hand-Muehlen von Geo. And. Bocklern, 1661.

Contenta discursus Mechanici; Concerutis Descriptionem optimae formea Velorum horizontalum pro. usa Molarum nec non fundam sutum inclinatorum Velorum in navibus habita corum Scientate Regia a R. H. translata ex collectionibus philosophis M Dec Num 3, Pa 61, 1681.

Disertatio Historica de Molis, quam priside Joh. Phil. Trewer Defend. Jo. Tob. Muhlberger Rahsboneus Jenal, 1695.

Martin Marten's Wiskundige beschonwinge der Wind of Wadermoolens Vergeleken met die van den heer Johann Lulofs, Amsterdam, 1700.

Vollstandige Muehlen-bukunst von Leonhard Christoph. Sturm, 1718.

Jacob Leopold's Theatrum Machinarum Molinarum, folio, 1724.

Remarques sur les Aubes on Palettes des Moulins, et autres Machines Mues par le Courant des Rivieres par M. Pitot, Mem. Acad. Roy., Paris, 1729.

Joh. Van Zyl Theatrum Machinarum Universale of Groot Algemeen Moolenbock, etc., Amsterdam, 1734.

Jo. Caral Totens disser. de Machinisti Molaribus optime Contruendis Lugd. Batav. 1734.

Kurze, Aber Deutliche Anweisung zur Construction der Wind und Wasser-Muehlen, von Gottfe. Kinderling, 1735.

Desangliers, Experimental Philosophy, 2 vols, quarto, 1735.

[Desangliers was the first Grand Master of Masons, after the order became speculative, and was a celebrated architect.]

Mr. A. W. Anderson, F. R. S. Description of a Water Wheel for Mills 1746.

Leonh Euelevi, De Construchone Aptissima Molarum Altarum disp., 1752.

Memoire dans legull on demontre quel' Eau d'une chûte, destinee á faire mouvoir quelque Moulin on autre Machine, pent troujours produire beaucoup plus d'effet en agissant par son poids qu'en agissant par son choc, et que le roues á pots qui tournent vite, relativement aux chûtes et aux de'penses d'eau, par M. de Parcieux, Acad. Roy., Paris, 1754.

Jo. Alberti Euleri Enodatio Questionis quo modo, vis aquae aluisve fluidi cum maximo lucro ad Molas circumagendas, alane opera perficienda impendi possit praemio a societate Regia Sci. Gotting, 1754.

An Experimental Inquiry Concerning the Natural Powers of Wind and Water to turn Mills. James Smeaton, F. R. S., Phil. Trans., 1759.

Schauplatz des Mechanischen Muehlenbaues, Darinnen von verschiedenen Hand, Trett, Ross, Gewicht, Wasser und Wind Muehlen. Theil, 1766.

Theatrum Machinarum Molarium oder Schauplatz der Muehlenbau Kunst, als der neunte theil von des sel hen Iac. Leopolds, von Joh Mathias Beyern, 1767.

Manuel Der Meunier et du Carpenteir des Moulins, redigé par edin Beguillet 1775.

Remarques sur les Moulins que l'eau Ment Par en bas dans une Direction horizontale par M. Lambert.

Tratade de los granos y Modo de modelos Con economie de la Conservacion de astus y de las Harianas; escr. en. fr. par M. Beguillet y extract y trad ál, Cast. con algun Notas y un Supplem. por. ph. Marescaulchi, Madrid 1786.

Die Noethigsten Kentnisser zur Anlegung, Beurtheilung und Berechnung der Wasser Muehlen und zwar der Muehl Oehl und Sage Muehlen zur Anfanger und Liebhaber der Muehlenbaukunst von John Christ Huth 1787.

An essay proving iron far superior to stone of any kind for breaking and grinding grain, by W. Walton, 1788.

Manuel du Meunier et du Constructeur des Moulins á Eau et a Grains. Par C. Bucquet 791.

Instruction Sur l'Usage des Moulins á Bras, inventés et perfectionis par les Citoyens Dura ıd. Pere et Fils 1793.

A Treatise on Mills, in four parts, by John Banks, 1795.

The Experienced Millwright, by A ıdrew Grey, 1804.

Buchanan on Millwork, 1811. [Sin e improved and enlarged.]

The following works treat on the Mo ıture Economique:]

Memoire sur les Avantages de la Mo ıture Economique par B. Dijon, 1769.

Manuel de Meunier, par M. Beguillet, Paris, 1775.

Traite de la Connoisance Generale des Grains et de la Mouture Economique, 1775.

Pain Economique, par M. de Buture, Carlsruhe, 1777.

Le Parfait Boulanger, Paris, 1778.

There are several other works on milling besides the ones mentioned, but being more modern, it is presumed our readers are acquainted with them. We will mention, however, The Young Miller and Millwright's Guide, by Oliver Evans, and Thomas Ellicott, Philadelphia, published by the authors, 1795. There are several valuable things in this book which are instructive at the present time, but it was spoiled in 1834 by a Thomas P. Jones, who was a professor of mechanics in the Franklin Institute in Philadelphia, who must have been the "expert" of his time. He succeeded, however, in rendering worthless what would be, even to this day, a valuable work on milling in many respects.

A copy of the original 1795 edition is now in the possession of the editor of the NORTHWESTERN MILLER, in which there is a list of the subscribers, headed by George Washington, Thomas Jefferson and Edmund Randolph. Eight senators follow. They are John Langdon, N. H.; Aaron Burr, N. Y.; John Rutherford, N. J.; Robert Morris, Pa.; Benjamin Hawkins, N. C.; A. Martin, N. C.; Ralph Izard, S. C.; and James Jackson, Ga. Fifty-four representatives subscribe for this book, and in all there are nearly six hundred names of subscribers printed in the first edition.

Some years ago William Fairbairn, afterwards Sir William, published a valuable work on milling. It is a standard authority on millwrighting to-day, and sells in this country for about twelve dollars. Roret, of Paris, has published two volumes, Boulanger et Meunier, by Fontenelle & Benoit, but they are out of date. A good work on milling is a desideratum at present. There are no works on milling exclusively except those above mentioned.

THE FINANCIAL IMPORTANCE OF WHEAT.

The financial importance of wheat, not only to grain dealers and on board, of trade, but on the stock exchange as well, is very evident, says the *Elevator*, and the shrewd financier of the latter guild watches the prospects of the growing crops with an interest equal to that of those immediately concerned, and with a far wider knowledge of its import. The reasons are readily seen in the light of facts. The wheat of this country, roughly estimated at 500,000,000 bushels, is about one-fourth of that of the world. In the handling, then, of the wheat of the world, five cents per bushel would give the sum of $100,000,000. The average cost of transportation from Chicago to New York is 14 cents, a range of shipment which is but a small fraction of the routes of a vast amount of these wheats. Of the home consumption, much of that required for seed is imported, while there is comparatively little of that used for food that does not require more or less transportation. The consumption of wheat in bread is constantly increasing, and is a fair index of civilization. The poor rye, barley, and potato eaters of Europe, and the colored race of the south, as they improve, demand wheaten bread; and careful statisticians claim that five bushels per capita is only a reasonable estimate of our home consumption of wheat. When one thinks of the vast capital involved in creating agricultural and milling machinery, in the elevators and grain handling facilities that this crop requires, the mind is baffled with the figures. But that which is now immediately represented on the stock exchanges are the railroad and shipping interests. Thousands of miles of railway to the best wheat producing regions of the west and northwest, and through the endless acreage possible to this product in India, have been the result of the requirements of this traffic. The same impulse that has been felt on the continent is moving on to old Asia, and stirring up China, that most ancient and immobile of kingdoms. The islands of the sea and the new continent of Australia have felt the same great wave of influence, while in the present national conflict over another Suez Canal it would be a matter of little surprise should the demands of this traffic place the ships themselves, laden with wheat, upon the rails and transfer them from the Indian to the Mediterranean seas.

NOTHING NEW UNDER THE SUN.

The accompanying engravings represent a mill and bakery exhumed in the buried city of Pompeii, photographs of which were obtained by Mr. George T. Smith during his visit to Europe. We are also indebted to Mr. Smith for the facts embodied in the subjoined description. This matter was published in the NORTHWESTERN MILLER, but is reproduced by request of some of our readers who wish to preserve it. The cuts were made from sketches by our own artist, and in the case of figure 3 his imagination has necessarily been called on to some extent, which may, perhaps, account for the grand opera air of the individuals who are engaged in the bread making operation. The antiquity of the principle of "gradual reduction" is evident from the following description:

Fig. 1 is a view of the interior of the mill, showing the reduction stones, four in number, and Fig 2 is a detached view of one of these stones, restored. Fig. 3 is a representation of the kneading device, which operation was also in effect a reduction, as will be explained.

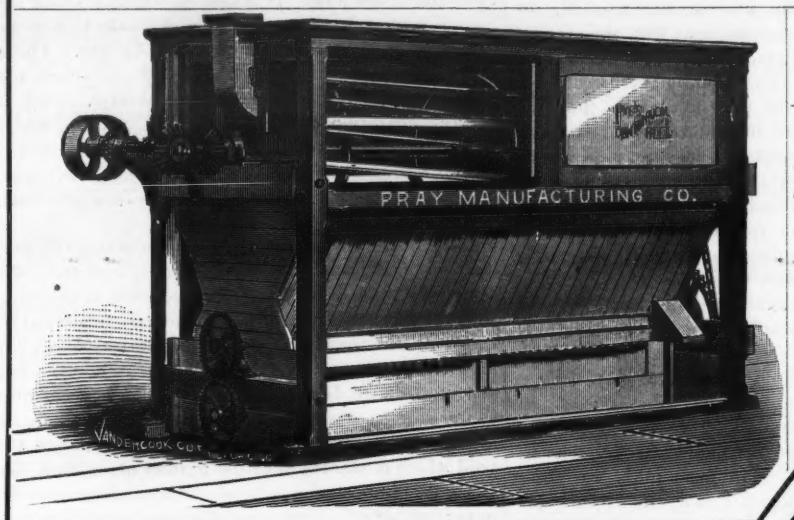
A, Fig. 2, is the runner, turned by levers D D, and having a hopper opening through its center, as indicated by the dotted lines. B, the bed stone, and C, a broad, flat stone table, circular in form and about three feet larger in diameter than the bed stone B, which rests upon and is secured to it. In operation the runner A was rotated by means of the sweeps or levers D D, a man—or more frequently a woman—being harnessed to the outer end of each, and walking in the circle described with the levers for a radius. The grain was fed through the opening in runner A, and was crushed between the adjacent faces of A and B and fell on the shelf or table formed by the projection of C. From this shelf it was gathered into hand sieves, covered with perforated rawhide, the flour and middlings sifted out, and the remainder fed to a second stone of like construction, where the operations above described were repeated; this treatment of the meal being continued through four breaks or reductions. No separation of flour and middlings was made, both being doughed up together for baking; but the middlings, softened by the moisture of the dough, were very thoroughly reduced by the operation of kneading as shown in Fig. 3, where the kneading board or stone is seen and in connection a heavy lever, hinged to the wall at one end, of sufficient length and so arranged across the kneading stone that two men sitting on its outer end, their toes reaching the pavement, were able, by springing upward and carrying the lever with them, to make it deliver a heavy, crushing blow on the dough in descending. By a protracted repetition of this operation the middlings were reduced as fine as the break flour.

With some additions in the way of bolting and purification this mill would be entitled to rank with the new process systems of the present day.

PRAY MNFG. CO.

MINNEAPOLIS, MINNESOTA.

PYE'S CENTRIFUGAL REEL.



ALTHOUGH IN THE MARKET BUT A FEW MONTHS, OVER

60

ARE NOW IN USE GIVING ENTIRE SATISFACTION.

The Points of Superiority

OF THIS REEL OVER ALL OTHERS ARE AS FOLLOWS:

The material is fed through a wire screen to prevent dough-balls, chips, nails, etc., from entering.

Anything lodged in this screen can be removed while the reel is in motion

The cut-off slides are so arranged that the miller can cut off every two inches making the entire bottom of the upper conveyor adjustable. It is supplied with two set of beaters. The second set prevent the material from working along in the center of the reel and at the same time keep the reel open They are made to be driven from a shaft either parallel or at right angles to the machine. This enables us to place them where it is impossible to place other machines. They are as well made as is possible with the most skillful workmanship and best material in the market.

MACHINE SHOP AND FOUNDRY

THE

Old Reliable

Dufour & Co.'s

Bolting Cloth

Write for Prices and information to

PRAY MFG. CO. MINNEAPOLS.

FROM OLD TO NEW.

BY G. P. W.

When this old mill was new, John,
You brought your grist to me;
I gave you honest measure,
A fact which you could see.
You brought wheat in the morning,
And took flour back at night;
Most always had some liquor,
And often reached home tight.
You didn't care in those days,
If I took out the germ,
And saved the semolina,
(I think that is the term.)
I was honest, then, and happy
And every Saturday night,
I counted up my profits
And knew I'd figured right.

* * * *

But those good days are gone, John,
We're moving faster now,
My eyes sometimes get damp when
I sigh and think of how
We used to smoke together,
And talk and joke all day,
While you were waiting for your grist;
And watch the water play,
Upon the creaking mill wheel
That toiled its weary round,
With many a moan and murmur
At the water's playful sound.
The dear old mill has aged grown;
From o'er the rushing stream
That new mill's big electric light
On its gray shape doth gleam.
The world has run away from us,
They say we're fogies too,
I don't know why, nor do I care
It is'nt worth a row.

* * * *

That great big mill across the stream
Is full of fangles new,
It makes much nicer flour
Than the old mill used to do.
They mash the wheat with rollers
And they bolt the flour with silk,
They call it the patent process,
I thought 'twas a patent bilk.
They have reels and fir centrifugals
And dust collectors, too,
They have so many new machines,
I don't know all they do.
They railroad wheat into the mills
And railroad flour out;
They draw the wheat five stories high
Right up a little spout.
(We used to shoulder sack by sack
And climb the floury stair.
Full many a tumble have I had
And many a sack I'd tear.)
They ship their flour to England,
To Ireland, France and Spain,
In fact to every country
On which falls Heaven's rain.

* * * *

The good old times are gone, John,
They'll never come again,
I can't say I am sorry
I'm richer now than then.
Yes, that great mill is mine, John,
And in it I've grown rich,
But I'm sometimes sentimental
O'er good old times "and sich."

THE FLOUR MANUFACTURE OF AUSTRALIA.

It is a fact in no wise to be disputed, that in those countries and regions of the earth which have before exported large quantities of crude products, these raw wares are being gradually replaced by articles manufactured therefrom for export and home consumption, says the *Allgemeine Muehler*. One reason for this may be easily discerned when it is considered that every substantial manufacture but serves to more speedily enhance the national prosperity of the country concerned.

It is not a great while since North America exported only unground wheat, but at present this export is fast being reduced to a minimum, while at the same time vast quanties of flour are exported across the sea to Europe. Already the American miller has become a formidable competitor of the English, the German and the Hungarian miller. For this reason it behooves English millers, especially, to seek to attain perfection, as near as may be, in their work.

Within the course of the past five years there has come into the province of the international trade in flour a new competitor, and one, too, not to be underestimated—namely, Australia. In a very brief space of time this country has built up and carried on with unintermittent energy a splendid milling industry, which has striven to supplant the annually increasing grain export of the country with a similarly growing export of flour. In particular is this the case with South Australia and Victoria. The statistics of public officers show that in Victoria in the year 1881 there were no less than 146 flour mills, and of these 132 were run by steam and fourteen by water power. In the former there were steam engines in action with a capacity all told of about 3,000 horse power. The total number of runs of stone in these mills was about 482, and on an average about 1,100 persons were daily at work in various capacities in running them. The amount of wheat milled aggregated some 8,000,000 bus., wherefrom 164,000 tons of flour were manufactured. The value of this product of flour, estimated at the average prices then current, amounted to fully 1,750,000 pounds sterling, while on their total investments the mills cleared a good round sum. The largest mills in Australia are found in Melbourne, Ballarat, Genely, Kyneton, Echuca, etc. Singularly enough, there are no wind mills to be found in Australia. When it is born in mind that of the flour manufactured in the before mentioned 146 mills of Victoria, nearly a million pounds' worth was used for consumption in that country, it follows naturally that an overplus of no small quantity remained for export, so that their trade in flour was of considerable importance in the Australian budget. When the network of Australian railways and other means of communication in the interior are more developed, and a greater export of marketable wares follows, the flour export must necessarily increase, and if there be no lack of cheap transportation, the increase will be enormous.

The statement is not to be doubted that the flour of Australia possesses good quality, and in the future it will create for itself a good market. That wheat culture in Victoria has developed rapidly will be clearly discerned by comparing the following total amounts raised in the years successively mentioned.

Year.	Bus.	Year.	Bus.
1839	12,600	1877	7,018,157
1840	50,420	1880	9,727,369
1845	234,734	1881	12,665,245
1862	3,008,487		

Within the space of the last fifty years, the wheat product of Victoria has increased a thousand fold. In regard to other portions of Australia, there were in 1881 in New South Wales 160 flour mills running, with a total strength of 2,950 horse power, and with 360 runs of buhrs. Of these mills 152 were driven by steam power. South Australia in that year possessed ninety like establishments, and New Zealand not less than 196. It is not an incorrect statement to say that in the year 1881 in all Australia there were a round 600 grain mills, and that assuredly since that time they have been quite largely increased in number.

It is no longer a matter of doubt, that when means of export and communication become enlarged, Australia will be numbered among the leading flour exporting countries to Europe, while at the same time the flour of America and that of India will play a prominent part in the food consumption of western Europe.

WHY WHEAT DETERIORATES.

Growing wheat successfully in this country, year after year on the same lands has never been accomplished, says a level headed writer. Those sections of the country which produced our wheat 50 years ago grow at the present time none, or but little, comparatively speaking, from the fact that the soil is impoverished and no longer produces profitable crops of this cereal. In England the same lands which grew wheat in 1066 to feed the armies of the Saxon Harold and William, Duke of Normandy, grow excellent wheat and in large quantities even now. It is said by historians that the Saxons were led to occupy England, in the last of the fifth century, because the land was so fer tile. These lands have been cultivated for the last 1300 years, and produce better crops than they did at first. Such is not the condition of the lands in this country, which have been cultivated for only about 50 years, as any farmer knows who has watched the growth of crops. There is cause for all this, as there is for everything. Nature never contradicts herself.

"There are certain natural laws governing the production of all plants which are propagated from the seed. The food of the plant is derived both in and from the soil. The plant fixes itself in the soil, throws out its roots, and extracts by them the greater part of the food necessary for its growth and perfection. The soil, in order to develop the plant to perfection, must contain or have supplied to it all the elements in an available state, which make the plant. Then the seed which is planted must be perfect of its kind, because it is impossible to produce perfection from an imperfect agent. First a suitable climate must be furnished, then sow perfect seed in good soil, and the remaining requisite is intelligent cultivation. If these essentials are furnished, contingencies will have but little effect upon the production of the crop. It is necessary that the soil be finely pulverized, loose and light, to admit air, moisture and heat, which acts as solvents to prepare the plant food contained therein, and to admit the roots of the plant which absorb this food. If the soil is not pulverized, but in lumps, the plant food is unevenly distributed and a great portion taken up beyond the reach of the plant.

"Many varieties of excellent wheat have been introduced into this country from foreign lands, but these varieties, through negligence or other causes have been grown together. These different varieties ripen unevenly, vary in many essential points, and as a consequence, do not produce the best flour. But this is not the great cause of deterioration. The successive production of wheat from the same lands will impoverish the soil unless there is added to the lands fertilizers containing properties that are necessary for its growth. Wheat extracts from the soil a certain class of elements and substances, every year reducing the capacity of the soil to furnish the required elements needed for successful tillage. To this there must be added two other causes; the selection of imperfect seed and the improper preparation of the soil.

"With good plowing; judicious selection of the seed; sowing at the right time by using a grain drill, and proper fertilizing, the wheat crop would be a success where it is not; and insect enemies, rust and blight would seldom be known. Rotation of crops, with thorough cultivation, will work a great change in western agriculture. Rotation is at least negative fertilization and should be practiced by the farmer. It has been said that he who grows wheat year after year for 20 years will need to emigrate before the term is fulfilled. Wheat need not deteriorate in this country, provided the soil be enriched by manures and by rotation, thoroughly cultivated in every particular, and the seed perfect and kept entirely free from admixture with other varieties or any foreign seed."

The latest observations indicate that we are distant from the sun 92,700,000 miles. These are the figures obtained as near as may be from the observations of the last Venus transits.

C. H. CHADBOURN, President. D. H. WILLIAMS, Vice President. JOHN T. LA DU, Secretary and Treasurer.

LA DU-KING MFG CO., MANUFACTURERS OF THE KING COCKLE MILL & SEED SEPARATOR

This Separator is now coming into general use with millers as a **GRADER,** and is giving universal satisfaction—its cheapness, perfect working and capacity being unequaled by any other separator in the market. By running this separator ahead of your Kurth machine, you can reduce the volume of wheat 75 per cent. (or about that) for the Kurth. This separator gives you 75 per cent. of the largest wheat, free from cockle and ready for the rolls, and 25 per cent. of the volume of wheat and cockle for the Kurth. This will increase your Kurth capacity about three times, and also give you two sizes of wheat for first break. You can do this all at one run and without extra power.

C. CADLE, Mill Furnisher, Sole Agent tor Europe, 39 Wellington Quay, Dublin, Ireland.

READ THE FOLLOWING TESTIMONIALS:

OFFICE OF R. D. HUBBARD & CO., MERCHANT MILLERS., MANKATO, Minn., April 4, 1883.

La Du-King Mfg. Co., Rochester, Minn.:

GENTLEMEN:—We have used your separator for the past year as a grader and cockle separator, and it has given the best of satisfaction. We grade the wheat on your separator preparatory to going to first break rolls, thus breaking each grade of wheat separately. The separator works without trouble and has never cost a cent for repairs. Yours truly,

R. D. HUBBARD & CO.

*

OFFICE WINONA MILL CO., WINONA, Minn., March 29, 1883.

La Du-King Mfg. Co., Rochester, Minn.:

GENTS:—Thinking perhaps if you should publish my opinion of your King cockle separator it might relieve some overloaded Kurth cockle machine and make some one happy, I'll speak it as I find it. I grade all our wheat over your King cockle separator. The large wheat is entirely freed from cockle, and less than one-fourth of the wheat only goes to the cylinder cockle machine, which enables us to perfectly free our wheat from cockle. As a grader it is the simplest and best in the market, requiring little or no attention. Beside being absolutely the cheapest machine offered for the purpose, it is the most perfect in its working. Refer any enquirer to me. Resp. yours,

WINONA MILL CO. per A. G. MOWBRAY, Supt.

*

WALDO MILL, MARION COUNTY, O.

La Du-King Mfg. Co., Rochester, Minn.:

GENTS:—The separator came to hand in due time, and does its work to my entire satisfaction, Very truly, CAPT. DRAKE, Agt.

*

OFFICE NORTHWESTERN ROLLER MILL, MINNEAPOLIS, Minn., Aug. 23, 1883.

La Du-King Mfg. Co., Rochester, Minn.:

GENTS:—We are using two of your separators and they work to our entire satisfaction. They are the cheapest and best machines in the market. Please send us two more machines. Yours truly,

SIDLE FLETCHER HOLMES CO.

*

FOREST MILL, Minn., Apr. 3, 1883.

La Du-King Mfg. Co., Rochester, Minn.:

GENTLEMEN:—Replying to your inquiry about your two new separators lately placed in operation in the Forest Mill, will say: They are working to our entire satisfaction. We are using both as graders, which enables us to entirely dispense with one Kurth cockle machine, and to greatly relieve the other. We can now clean our wheat entirely clean from cockle and save very largely from waste in our screenings. And we here say that we regard them as the simplest, cheapest and best machines made.

Very respectfully yours, FOREST MILL CO.
W. S. WELLS, President.

WABASHA, Minn., Sept. 7, 1883.

La Du-King Mfg. Co., Rochester, Minn.:

GENTS:—In answer to your favor of the 5th inst., we take pleasure in bearing testimony to the merits of your King cockle separator. It more than meets our anticipation. We use it as a cleaner and grader, and it works to our entire satisfaction. Very truly yours, WABASHA MILL CO.

OFFICE OF CHAS. A. PILLSBURY & CO., MINNEAPOLIS, Minn., Oct. 11, 1883.

John T. La Du, Sec'y., Rochester, Minn.:

DEAR SIR:—In reply to your favor would state your King cockle separator and grader has now been in operation for three weeks, and gives entire satisfaction. I think it the most important separator in the mill. It is no trouble whatever, and work can not be better. I am highly pleased with it.

Very respectfully, WM. H. HELFRICH, Anchor Mill.

BATTLE CREEK, Mich, Nov. 13, 1883.

La Du-King Mfg. Co., Rochester, Minn.:

GENTS:—The Cockle Separator and Grader purchased of you fills a place in our elevator which has needed an occupant for some time. We use it after a Barnard & Leas separator, to take out chess, cockle, dust and small wheat before going to the smutter. It is a perfect *grader*, besides requiring no power and little or no attention, and we would not do without it in preparing wheat for our mill. Yours truly, HINMAN & WARD,
Merchant Millers.

*

OFFICE PETOSKEY CABLE MILLS, PETOSKEY, Mich., Apr. 16, 1883.

La Du-King Mfg. Co., Rochester, Minn.:

GENTS:—In reply to your favor we would say, the King cockle separator is all you claim for it and we are well pleased with ours. No miller would do without it, after once using it. Wishing you success we are,

Yours truly, HANKEY BROS.

*

WOODSTOCK, Minn., Apr. 21, 1883.

La Du-King Mfg. Co., Rochester, Minn.:

GENTS:—Having purchased one of your King cockle machines, and given same a thorough trial, I would respectfully state that it works to complete satisfaction. G. H. PERRY.
Agent for SAMPSON & FRENCH, Storm Lake, Ia.

*

OFFICE OF JESSE AMES & SONS, NORTHFIELD, Minn., Apr. 5, 1883.

La Du-King Mfg. Co., Rochester, Minn.:

GENTS:—We think your King cockle separator a practical machine for separating and grading wheat before going on to a Kurth machine, and we are well pleased with them. Yours respectfully, JESSE AMES & SONS.

*

OFFICE OF DIXON ROLLER MILLS, DIXON, Ill., Oct. 23, 1883.

La Du-King Mfg. Co., Rochester, Minn.:

GENTS:—In reply to your favor will say we find the cockle separator all you represented, and are well pleased with it. We find capacity ample and fully up to your guarantee.

Yours truly, BECKER & UNDERWOOD.

*

OFFICE OF GEO. T. JACKSON & CO., AUGUSTA, Ga., Jan. 11, 1882.

La Du-King Mfg. Co., Rochester, Minn.:

GENTS:—Your favor of recent date to hand. We have also received the No. 2 cockle separator and are much pleased with it. Please ship at once another No. 2 separator like the last one, and draw on us at sight for both. Your early attention will oblige

Yours very truly, GEO. T. JACKSON & CO.

*

OFFICE FRANKLIN MILL CO., 38 CLARK ST., CHICAGO, Ill., April 21, 1883.

La Du-King Mfg. Co., Rochester, Minn.:

GENTS:—In reply to your favor would say: We have been using one of your cockle separators for six months, and take pleasure in speaking of it in the highest terms whenever an opportunity offers. Yours truly, FRANKLIN MILL CO.

FOR CIRCULARS AND INFORMATION, WRITE **THE LA DU-KING MFG CO., Rochester Minn.; THE LA DU-KING MFG CO., Toronto, Canada.**

MILLERS

Can Find IN STOCK Anything from a

FLOUR TRIER TO A BOLTING CHEST

AT THE ESTABLISHMENT OF

G.F.G. GENERAL MILL FURNISHER

53 SOUTH CANAL STREET. CHICAGO.

SOLE AGENT IN CHICAGO FOR THE SALE OF

DUFOUR & CO'S BOLTING CLOTH,

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RUSSELL MANUFACTURING CO'S

"Celebrated" Solid Woven Cotton Belt.

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FURNISH ALL THE TYPE

USED BY THE

NORTHWESTERN MILLER,

TO WHOM THEY REFER.

Bain's International Telegraph Code.

Compiled by HON. GEORGE BAIN, President of the National Millers' Association.

This Code has been prepared by Mr. Bain, after a long experience in the Export trade. It is believed that it meets all the requirements of a perfect Cable Code, enabling an offer or acceptance for any quantity of flour or grain to be made in a single word, and reducing the liability of mistake to a minimum. In its preparation the greatest care has been used to exclude all words of similar appearance and sound. This latter feature will be found of especial value to all millers and flour receivers whose messages are re-transmitted by telephone, from telegraph offices or over wires connecting offices situated some distance apart.

In order to guard against mistakes in transmission at receiving or sending stations, the further precaution has been taken to have the Code TWICE REVISED BY EXPERIENCED TELEGRAPHERS, who have eliminated all words bearing the slightest relation to each other in telegraphic character. For these reasons and for many others which will be at once apparent upon an examination of the Code book, the publisher believes he is justified in claiming for it the distinction of being

The Most Perfect Cipher Code Yet Prepared

For the Use of the Flour and Grain Trade.

The spaces for brands of flour, etc. are left blank for the user to fill in as desired, thus preventing third parties making any use of information or copies of messages surreptitiously, obtained. Thus a the flour shippers in the largest city, though using the same code, are fully protected from the evils resulting from the unlawful disclosure or wrong delivery of messages, as in any but the right hands the message would be entirely unintelligible and useless.

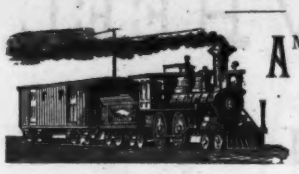
The publisher solicits orders for sample copies, feeling confident that an examination of the Code will result in its general adoption.

C. M. PALMER, PUBLISHER,

The Northwestern Miller Office, MINNEAPOLIS, MINN., U. S. A

Bound in Russia leather in form suitable for pocket. PRICE TWO DOLLARS PER COPY.

RAILROADING FIFTY-EIGHT YEARS AGO.



AMONG recent visitors to the NORTHWESTERN MILLER sanctum was Mr. Simon Alderson, of Austin, Minn., grain dealer and miller. Mr. Alderson was one of the passengers on the initial trip of the first railway passenger coach ever built, was fireman on some of the first locomotives, and remembers well the circumstances attending the introduction of steam power on English railways. He relates that George Stephenson, after failing to secure aid for building a locomotive for the Newcastle coal railways, the propelling power being horses, went to the owners of the Stockton & Darlington railroad—a line twenty-five miles long, between Shildon and Stockton—Joseph Pease Jr. & Co., and with their aid built the first locomotive. As soon as it was completed a great outcry arose, the farmers claiming that it would burn their houses and stacks and do away with the uses of horses, while the laborers were certain that it would deprive them of bread by depriving them of work. An injunction was issued against the running of the engine and a special act of parliament was necessary to remove it. It was during the progress of the parliamentary inquiry that Mr. Stephenson was asked:

"How fast will this engine travel—five miles an hour?"

"More than that," was the reply.

"Six miles?"

"More than that."

"Seven miles?"

"Yes," said Stephenson, "it will run tweve miles an hour, at least."

"Well," said a member, "suppose it were running twelve miles an hour and should strike a cow—what would be the result?"

"It would be bad for the coo," replied Stephenson.

Paliament passed the act, and the locomotive began running. The Stockton & Darlington railway was built on a water grade, at great expense, not less than $300,000 per mile. The engine took a long train of coal-laden cars and several cars of horses from Shildon to Stockton, where the horses were utilized in hauling back empty cars, the one engine not being equal to the task of getting them back fast enough, as the traffic was heavy. The road was laid with the T rail, much like that now used, but it was laid bottom up. The ties were of stone, two feet square, bedded in coal and cinders. Holes were drilled through the stones and iron chairs were bolted to them, the rail being set into these chairs and fastened to them with wrought iron bolts which passed sidewise through the rails, much after the style of the modern bolted fishplate. The road was very solid and substantial. The car wheels were flanged as at present. Other railroads had been laid and used long before at Newcastle and elsewhere, laid with the old strap rail, on wooden sleepers, horses being the power employed. The first passenger coach was modeled after the English road coach then in use. It rested on two strong beams over the wheels, not having the modern thoroughbrace. It had four wheels and held four inside and eight outside passengers. It was built by a man named Adamson, who operated a stage line from Shildon to London. Previous to this the railroad companies had never thought of carrying passengers. Adamson was allowed to use the road and with a fast trotter which he owned would haul his car load of people twelve miles an hour over the road. The first locomotive had but four wheels and at first the side rods were not used, but soon afterward Stephenson put on these rods. This engine had been used on the road two years when Adamson's coach was built and it was a long time before the passengers were hauled by steam power. Mr. Alderson was seven years old when the coach made its first trip, and was one of the passengers. Two years later he began railroad work, being employed to drive horses which hauled cars. At the age of sixteen he became stoker, or fireman on a locomotive named the Arrow. He afterwards returned to horse driving, but his last work in England was as fireman on an engine on the Hartlepool & Haswell railroad, on the locomotive Arrow, which used to run sixty miles an hour frequently. Mr. Alderson left England in 1840, with his wife, and after a short sojourn in the east, left Perry, Wyoming county, New York, in 1841, with his wife and child for the west, driving to Platteville, Wis., about 1,000 miles, with a horse and wagon. There were but a few short lines of railroad in America then. Alderson drifted around among the lead mines of Southern Wisconsin and Illinois for some years, and came to Minnesota in 1867, building the first buhr mill at Austin. He sold it and put up the first mill at Otranto, then built a feed mill at Lansing, which he is now running. He is engaged in the grain business at Austin, Hampton and Lansing. His first wife bore him six children and died near Galena, Ill., twenty-eight years ago. His second wife was a Miss Davy, a grand-daughter of Sir Humphrey Davy, the eminent English scientist. It is a family tradition that Sir Humphrey built a steam road wagon, which he tested in a smooth, level field, where it soon got away from him and ran through the fence into another field, nearly frightening the life out of a party of laborers there at work. The Alderson family has acquired fame for its pioneering attributes. A brother of the member under notice publishes the *Avant Courier*, the leading paper of Montana, at Bozeman; another brother was one of the pioneer Methodist preachers of Washington territory, whither he went on horseback from St. Louis in 1852; another brother started the town of Coulson, Mont., and another was one of the pioneers of Colorado, being a sheep raiser near Pueblo for a long time. Although 65 years of age, Mr. Alderson looks twenty years younger, and is hale and hearty. His sons are all in the grain business and are doing well. Mr. Alderson relates that a fellow passenger on the first coach was Rev. James Alderson, a relative, now a Congregational minister at Hampton, Ia., who was wont to do light work on the road in return for the privilege of riding on the coach. An engineer named Ridley, now running a locomotive on the Chicago, Milwaukee & St. Paul railway between Minneapolis and Calmar, Ia., was a workman in Stephenson's locomotive shops.

A "SQUARE MEAL" OF FIGURES.

The subjoined paragraph is floating through the press of the country:

"It is a singular fact, not generally known, that Massachusetts, agriculturally speaking, produces only enough to subsist her population fifteen days of the 365 in the year."

An interesting train of thought was suggested by reading it, and the thinking resulted in the making of some figures which cannot fail to arrest attention. Using a conservative estimate of the wheat yield of the country, by states, for 1883, it is developed that Massachusetts, if she fed her people on bread alone, does not produce enough wheat to subsist her population of three years ago for one day. The estimate on which these figures are based is one and one-half barrels of flour, or seven bushels of wheat per capita per annum. This is the figure given by local millers of the flour consumption in Minneapolis. There are some states, notably the southern tier, where corn meal is largely used, to the almost entire exclusion of wheat flour, but although the figures may not, and probably do not, apply well to those states, it is a fact that the corn diet is fast giving way to a wheat diet in the south. The figures on population are from the census of 1880, so that even if the estimate of consumption be too large, the increase of population since then will fully cover the surplus.

It will be noticed that none of the New England or Middle states raise enough wheat for home consumption, while five territories produce about 20,000,000 bushels more than they consume. In these figures nothing is allowed for seed, and taking the department of agriculture's estimate of production, 11.3 bushels per acre as a guide, we find that the acreage this year was about 40,000,000, for which 60,000,000 bushels would be required for seed, if there were no increase in acreage next year. This would reduce the total surplus, in round numbers, to 216,000,000, with the deficiencies of the small producing states to come out, say 118,000,000 bushels, leaving 98,000,000 bushels for export. Figures heretofore made by various statisticians have given our exportable surplus as 112,000,000 bushels. The table shows that Minnesota occupies the proud position of having the largest crop and the largest surplus of any state in the union, but that the territory of Dakota has a surplus (seed not included) of over 118 bushels per capita on her population of 135,177. Seven states, Minnesota, Indiana, Michigan, Kansas, Nebraska, California, Oregon, and one territory, Dakota, have a surplus of over 10,000,000 bushels. Idaho, which is commonly supposed to be a sterile wilderness, puts the New England and Middle states in the background by raising a surplus of fifteen bushels per capita more than her consumption. But four of the southern states, Delaware, Maryland, Missouri and Texas, raise a surplus; Mississippi, Georgia and Florida, showing the largest relative deficiencies. The estimate for Dakota in the above table, 17,000,000 bushels, is probably 2,000,000 bushels too high, and Kansas papers claim a crop of 34,000,000 bushels, instead of 28,000,000, as given in the table. Interesting comparisons and deductions might be continued *ad libitum*, but these will do for the present:

State or Territ'y.	Population.	Crop, Estimated.	Deficit.	Surplus.
Maine	648,936	500,000	4,042,552	.....
New Hampshire	346,991	200,000	2,228,937	.....
Vermont	332,286	200,000	2,126,002	.....
Massachusetts	1,783,085	20,000	12,461,595	.....
Rhode Island	276,531	1,000	1,934,717	.....
Connecticut	622,700	50,000	4,308,900	.....
New York	5,082,871	12,000,000	23,580,097	.....
Pennsylvania	4,282,891	22,000,000	7,986,237	.....
New Jersey	1,131,116	2,000,000	5,911,812	.....
Delaware	146,608	1,500,000	.....	473,756
Maryland	934,943	7,000,000	.....	455,399
Virginia	1,512,565	7,000,000	3,587,955	.....
West Virginia	618,457	4,000,000	329,199	.....
North Carolina	1,399,750	6,000,000	3,798,250	.....
South Carolina	995,577	2,000,000	4,969,039	.....
Georgia	1,542,180	4,000,000	6,795,260	.....
Florida	269,493	1,000	1,885,451	.....
Alabama	1,262,505	1,500,000	7,337,535	.....
Mississippi	1,131,597	200,000	7,891,179	.....
Louisiana	939,946	10,000	6,569,622	.....
Texas	1,591,749	14,000,000	.....	2,857,757
Arkansas	802,525	2,000,000	3,617,675	.....
Kentucky	1,648,690	10,000,000	1,540,830	.....
Tennessee	1,542,359	9,000,000	1,796,513	.....
Ohio	3,198,062	24,000,000	.....	1,613,566
Indiana	1,978,301	28,000,000	.....	14,151,893
Illinois	3,377,871	22,000,000	1,645 097	.....
Michigan	1,636,937	24,000,000	.....	12,541,441
Wisconsin	1,315,497	17,000,000	.....	7,791,521
Iowa	1,624,615	21,000,000	.....	9,637,695
Minnesota	780,773	32,000,000	.....	26,534,589
Kansas	996,096	28,000,000	.....	21,027,328
Nebraska	452,402	17,000,000	.....	14,233,186
Colorado	194,327	2,000,000	.....	639,711
Nevada	62,266	100,000	335,862	.....
Missouri	2,168,380	23,000,000	.....	7,821,340
California	864,694	30,000,000	.....	24,947,142
Oregon	174,768	13,000,000	.....	11,776,624
Arizona	40,440	200,000	83,080	.....
Dakota	135,177	17,000,000	.....	16,053,761
Idaho	32,610	700,000	.....	471,730
Montana	39,159	700,000	.....	425,887
New Mexico	119,565	600,000	236,955	.....
Utah	143,963	1,500,000	.....	492,259
Washington	75,116	3,000,000	.....	2,474,188
Wyoming	20,789	50,000	95,523	.....
Totals	50 155,783	400,032,000	118,047,447	276,424,773

ABSORPTION OF MOISTURE BY GRAIN.

The claim that grain absorbs moisture enough on a sea voyage to pay the freight charges has been verified by some test experiments made at a California agricultural college. Various kinds of grain were placed in a moist atmosphere and the increase in weight was noted.

The greatest increase was during the first twenty-four hours, the absorption being nearly 33 per cent. of the total absorbed during the fifteen days exposure. The following table shows the figures:

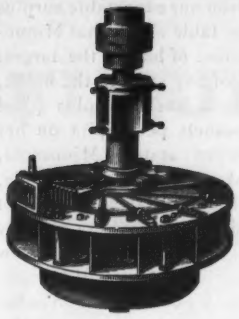
	First 24 hours.	Total in 15 days
Oats	2.79 per cent	7.70 per cent
Barley	1.45 per cent	7.00 per cent
Wheat	2.45 per cent	6.50 per cent

From the results obtained it was computed that perfectly dry grain 65° Fah. would absorb as follows: Oats, 29.08 per cent; barley, 28.17 per cent; wheat, 25.02 per cent. Under ordinary conditions the percentage is perhaps not so high, 15 to 16 per cent. probably being the average.

Queen Victoria is passionately fond of baked apples. The walnut is another favorite of hers. She has a dish of these nuts constantly prepared, with the shells removed and every bit of brown skin taken off, leaving the nut white and whole.

JAMES LEFFEL'S WATER WHEEL,

Manufactured by JAMES LEFFEL & CO.



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WITH VALUABLE IMPROVEMENTS, Making it the

MOST PERFECT TURBINE

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Comprising the LARGEST and the SMALLEST Wheels, under both the HIGHEST and LOWEST Heads used in this Country. Our new Illustrated Book sent free to those owning water power. Those improving water power should not fail to write us for NEW PRICES before buying elsewhere. New Shops and New Machinery are provided for making this wheel.

JAMES LEFFEL & CO.,

SPRINGFIELD, OHIO and 110 LIBERTY STREET, N. Y. CITY.

JOHN C. HIGGINS,

MANUFACTURER and DRESSER OF

MILL PICKS.

THE CHAMPION MILL PICK OF THE WORLD.

MR. JOHN C. HIGGINS, PORT ADELAIDE, Australia, November 25th, 1882.

Dear Sir :—Yours the 26th of May last came to hand in due course, enclosing Circular, with Judges' report on Mill Picks at the Exhibition here last year. It may surprise you somewhat to learn that "G. Shorney" is a member of our firm. We now have pleasure in asking you to send us, at your earliest convenience, eight (8) dozen Mill Picks, each 3½ lbs., nicely drawn out and tempered, like those we saw at the Exhibition—not the one with the hole in them made specially for furrowing. Draw on us for amount of invoice through "The National Bank of Australasia." Yours faithfully,

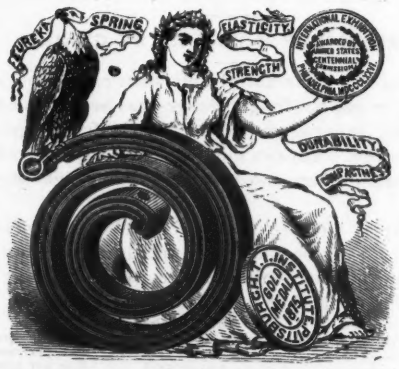
JOHN DUNN & CO., Millers and Corn Merchants.

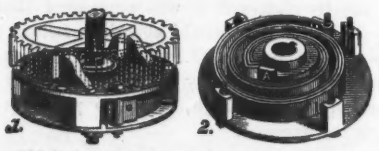
165 West Kinzie Street, CHICAGO, ILL.

HAFNER'S

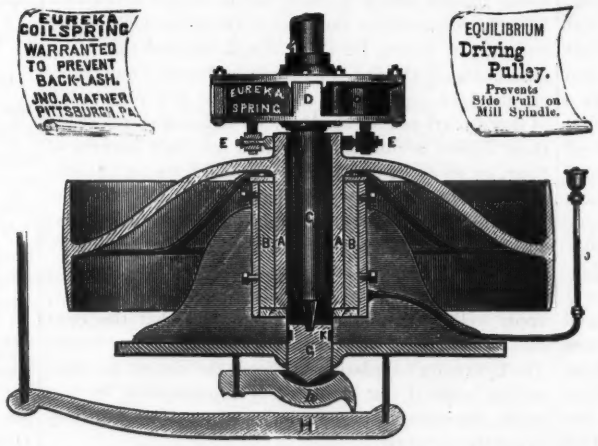
PAT. EUREKA COIL SPRING & EQUILIBRIUM DRIVING PULLEY

FOR MILL SPINDLES.





This is the spring of which D. H. Sparks, President of the Illinois Millers' Association says: "We are only sorry that we did not get them at first."



MILLERS, consider for a moment, whether you are grinding on stones exclusively or using Rolls and Stones together. Every pair of Stones should be run to the greatest possible perfection, WITHOUT SIDE PULL, OR VARYING MOTION ON SPINDLE, which can only be accomplished by the use of these devices.

With Equilibrium Pulley all the PULL of belt is on HUB of Pulley, and not on toe of SPINDLE. Spindle never needs any more tramming at Step when once set.

NO DIRT OR GRIT CAN GET INTO BEARINGS OR STEP!

JNO. A. HAFNER, 39 Water Street, Pittsburgh, Pa.

GOSSIP OF A TRAVELING INN.

WINTER WHEAT.

AS the Christmas holiday times approach, he who is upon the road experiences that feeling for home and home life which long and frequent absence, the cares of business, the spirit of resignation in the allotted experience, is inclined to dull and make less painful. It can not be denied but that though habit, custom and snecessity wean him from many of the beauties and attachments of home life, wife and babies are never entirely out of mind. He thinks none the less of them because of his absence, but oftentimes, as I must acknowledge, and as is the experience of many whom I know, their presence is less necessary to our happiness from month to month and from year to year. His home, as indicated by occupancy and constant association, is in coaches and sleeping cars: the home of the traveler is the Traveling Inn. After a time he becomes restless in the presence of his family. Reaching home Saturday night, he is happy but restless, and takes the road on Monday morning with the Gossips of the Traveling Inn in a more natural way than with his family at home. The writer very seldom reads anything at home—his conversation with the strangers of his family takes his time, and reading with them is something which has been neglected. It is an unused custom. The literature in the forms of its publication is well suited to bring about a pleasanter life to him whose days and nights are spent on the road. As it is now, one can get any of the standard works of prose or poetry at from ten to twenty cents, and the traveler can carry his wardrobe in one hand and his library in the other. One of these books is attracted to my notice by its name. It is the "Mill on the Floss," by George Eliot. The writer, in describing the Dorlcote mill says: "The rush of water and the booming of the mill bring about a dreamy deafness which seems to heighten the peacefulness of the scene. They are like a great curtain of sound, shutting out one from the world beyond. And now there is the thunder of the huge covered wagon, coming home with sacks of grain. The honest wagoner is thinking of his dinner, getting sadly dry in the oven at this late hour. But he will not touch it until he has fed his horses—the strong, submissive, meek-eyed beasts. * * * Now I can turn my eyes toward the mill again and watch the unresting wheel sending out its unresting jets of water. And that queer, white cur with the brown ear seems to be leaping and barking in ineffectual remonstrance with the wheel. This Dorlcote mill was owned by Edward Tulliver. He was the typical, honest miller, honest and hard-headed;—persistent in the direction which he believed to be right. His persistence was more like stubbornness, and his impulsive fixedness led him into revengeful acts. He was unforgiving because of his stubborn disposition. When his mind seized an idea, it held on to it tight. Such people, no matter how good their instincts may be, nor how honorable their general purposes, make such glaring mistakes in their impetuous, energetic way, that in the minds of many who are brought in contact with them, they are regarded with feelings as unjust as they are discreditable to the general purposes of the man. The wife of this miller wanted to have a consultation with other members of the family in regard to the course to be pursued in the education of their son Tom. She wanted to get up a dinner and invite her relatives, and all go into the matter together. She closed her remarks by saying, 'There's a couple o' fowls wants killin'.' Said Mr. Tulliver defiantly, 'You may kill every fowl in the yard if you like, Bessie, but I shall ask neither uncle nor aunt what I am to do with my own lad.' In this remark we have a side view of Mr. Tulliver. He was a philosopher in his way, as are all men of this class. He covered the disposition of a multitude of people when he said, 'There's the fault I find with you, Bessie. If you see a stick in the road you are always a thinking you can't step over it.'" We are all acquainted with people such as are included by the above remark. Those who are afraid to meet obstacles—those who pause or stop entirely because of small difficulties."

In reading of millers as the ordinary characters in stories, I do not remember any who were spoken of as being bad or vicious men. If a novelist were choosing an occupation for his depraved character, tt would seem entirely out of place to give him such an occupation. On the contrary, it is usual to do just the other thing. The honorable, upright characters are frequently assigned to a miller. Knowing as I do a very large number of men and of varying occupations and considering my own experience in connection with the general impressions, I think that it can fairly be said that the millers of a community are nearly always included among its best and most upright citizens, as representative of good instincts and honorable purposes. As a general thing the miller of a community has dealings with or is known by nearly every man, woman and child in his own town and the country immediately surrounding. If he is not an honest man it is known to all in a very short time and such knowledge is so forcibly made apparent to him that he has to make room for a more worthy competitor. He has to be a man who can hold himself up to the critical gaze of his neighbors. This is his test and its result gives him his position. It is almost universally the case that one will find the successful miller of a town one of the best and most respected men of that community. This is indicated on a large scale by the official and political positions which have been held by some of the millers of the country. While on one hand the reputation is confined to a town or county, in this instance it extends to the state and the United States. One is local and the other is national.

In one of Tennyson's poems, where he tells the story of Enoch Arden, we have Philip Ray occupying the same estimable position in the minds of the people. In his earlier life, it will be remembered, he and Enoch Arden loved or thought they loved the same girl. This necessarily meant a quarrel, or rather many of them, the earliest of which the centre of attraction quieted by saying that she would be little wife to both, which she did one at a time, however, first to Enoch, who made the strongest fight, and finally to Philip the miller, during Enoch Arden's enforced absence as a shipwrecked sailor. Now Philip handled this thing very nicely. He allowed the children to play around the mill and frequently sent samples of his flour home to their mother, giving as an excuse for so doing the peculiar excellence of the product. All this had its climax in a nutting excursion with Annie and the children, when Philip used these tender words:

"Tired Annie?" for she did not speak a word.
"Tired?" but her face had fallen on her hands;
At which as with a kind of anger in him,
"The ship was lost!" he said, "the ship was lost!
No more of that! Why should you kill yourself
And make them orphan quite?" And Annie said
"I thought not of it, but—I know not why—
Their voices make one feel so solitary."
Then Philip coming somewhat closer spoke:
"Annie there is a thing upon my mind,
And it has been upon my mind so long,
That tho' I know not when it first came there,
I know that it will out at last. O Annie,
It is beyond all hope, against all chance,
That he who left you ten long years ago
Should still be living; well then, let me speak;
I grieve to see you poor and wanting help:
I cannot help you as I wish to do
Unless—they say that women are so quick—
Perhaps you know what I would wish you know,
I wish you for my wife. I fain would prove
A father to your children, I do think
They love me as a father; I am sure
That I love them as if they were my own."

* * * * *

Then answered Annie, tenderly she spoke:
"You have been as God's good angel in our house.
God bless you for it, God reward you for it,
Philip, with something happier than myself.
Can one love twice? Can you be ever loved
As Enoch was? What is it that you ask?"
"I am content," he answered. "to be loved
A little after Enoch." "O," she cried,
"If Enoch comes,—but Enoch will not come—
Yet wait a year, a year is not so long;
Surely I shall be wiser in a year:
O wait a little." Philip sadly said,
"Annie, I have waited all my life;
I well may wait a little." "Nay," she cried,
"I am bound; you have my promise in a year;
Will you bide your year as I bide mine?"
And Philip answered, "I will bide."

In an old number of St. Nicholas, there is illustrated the story of the Miller of the Dee. It begins like this:

"The moon was afloat,
Like a golden boat,
On the sea blue depths of the sky,
When the miller of the Dee
With his children three
On his fat, red horse rode by.

"Whither away, O Miller of the Dee,
Whither away so late?"
Asked the tollman old,
With a cough and a sneeze,
As he passed the big tollgate;
But the miller answered him never a word.

* * * * *

afraid to tell,"
Quoth the old tollman,
"He's ashamed to tell," quoth he;
"But I'll follow you up and find out where
You are going, O Miller of the Dee."

Then there was the pretty milkmaid. She saw the miller and the tollman, asked him where he was going and he answered the same as the miller, never a word, and as her curiosity began to arise, she arose in person and followed the tollman.

The parson saw the maid and followed her;
After the parson came his wife;
The sexton he came next.
After the sexton the constable came,
Troubled and sore perplexed.
After the constable two ragged boys,
To see what the fun could be,
And a little black dog with only one eye,
Was the last of the nine, who with groan and sigh,
Followed the Miller of the Dee.

They followed him through the rain as he forded the river until he came around to his home again, and all to see where the miller was going.

"I went for a ride,
A nice cool ride,
I and my children three."
They looked at each other, so
"We were out for a walk,
A nice cool walk," said they.

This is a children's story with the true verbal jingle, and the accompanying moral. If any one does not see where the moral comes in, it is good evidence that it has no application to his particular qualities. However, this statement is directly antagonistic in theory to the experience of a minister of whom I once heard, who was given to preaching personal sermons. The intended victim would always come to him afterward and say how splendidly that sermon fitted some of his brother neighbors.

The miller does not have a very large place in literature. He is a quiet, unobtrusive gentleman, and like all good and quiet people there is very little to be said about him.

When it comes to grain and bread, something which tickles the appetite, we have a great deal to select from. As I see the crows looking over and feeding over the corn fields, walking in that black, dignified way, I am reminded of the account of the dreadful things which befel what Longfellow calls the Ravens, in the song of Hiawatha. He calls them ravens, but really I have no doubt that if the metre had been

different he would have called them crows. The word raven, having two syllables, suited his purpose better. In the Blessing of the Cornfields, in the same poem, occurs :

Once when all the maize was planted,
Hiawatha wise and thoughtful,
Spake and said to Minnehaha,
To his wife, the Laughing Water,
"You shall bless to-night the cornfields,
Draw a magic circle round them
To protect them from destruction."

* * * * *

"Rise up from your bed in silence,
Lay aside your garments wholly,
Walk around the fields you planted,
Round the borders of the corn fields,
Covered by your tresses only,
Robed with darkness as a garment.
Thus the fields shall be more fruitful,
And the passing of your footsteps
Draw a magic circle round them."

Finally this incantation was worked out to the dreadful destruction of the so-called ravens, but there were several left for the poets to sing about, and the farmers to swear at, and it might be well to say that the same thing which will make a man swear will make a woman cry and a poet sing.

Whittier's ravens are crows. In his corn song he says :

"We dropped the seed o'er hill and plain,
Beneath the sun of May,
And frightened from our sprouting grain
The robber crows away.

All through the long, bright days of June
Its leaves grew green and fair,
And waved in hot mid-summer's noon
Its soft and yellow hair."

But as this is not a compendium of the miller in literature, or grain in poetry and song, I will dispel any previous delusion of this kind which the reader may have had by dropping the subject.

THE COLONEL'S CHRISTMAS TURKEY.

BY WM. S. HINELINE.

In the fall and winter of 1862 the regiment to which the writer was attached was assigned to picket duty in Maryland, in the vicinity of Ellicott's mills, and for many miles guarded the Baltimore & Ohio railroad, and all the cross-roads, and houses, and shanties in that vicinity, it is presumed to prevent them from running off. The country had been pretty thoroughly foraged, and chickens, whenever a Union soldier was in the vicinity, roosted exceedingly high, generally on topmost branches at night and even the pigs crawled far under the houses, just beyond reach. There seemed, indeed, to have been planted in the brain of every living thing that could be made available for a soldiers' banquet, the pregnant belief that the farther they could get from the blue coats the longer would be their lease of life.

Christmas, that fateful period in the history of the turkey, that era of good cheer, pumpkin pie, celery, and other good things, was coming on apace, and each soldier's heart began to sigh wistfully for turkey, and each eye longed to rest lovingly on some well-populated hen-roost. Eagerly they listened for the clarion voice of some chanticleer, but none broke through the grey mists of early morning; nor was heard the gobble, nor was seen the lordly strut of the gobbler. As far as relates to these, death-like silence prevailed. Excursions, far and wide, had been made into the wild-woods and across the country, but not a feather greeted the eyes of the foragers. In fact the barn yards presented the appearance which is always remarked after the adjournment of a ministerial conference—a lamentable absence of poultry!

It became necessary to extend one of the pickets toward a farm house remote from the camp. This picket was placed in charge of a sergeant and five private soldiers, who were solemnly enjoined to watch the house, as it was the property of a bitter rebel. The establishment was tenanted by freedmen, who evinced much happiness when they saw for the first time the Union picket. Sam, one of the darkies, was a pocket-edition of "Old Uncle Tom," and if he was not as immaculate as Mrs. Stowe has depicted that character, he was none the less honest in his admiration of liberty and those who fought for it.

"Sam," said the sergeant, "any turkeys hereabout?"

"Only one, boss, but he's the kernal's, an' I'se watchin' 'im fur him."

"Where is the darling; where does he roost?"

"See dat blac' spec' up dat dare tree, and you see's 'um."

Sure enough! Outlined against the November evening was a dark object. It was the colonel's Christmas turkey. To possess that object each soldier would have charged into the very jaws of death. To confiscate that turkey was the earnest wish, and the high resolve of the out-post.

But "Sam" was loyal to his charge. Again and again he disdainfully rejected bribery. It were high treason for him to rob the epicurean stomach of the doughty colonel of this most delicious morsel on Christmas day. To hand over that turkey, properly stuffed, and flanked with well browned potatoes, to the colonel, was the cherished ambition of his life. The turkey had been thriving under the careful feeding of the freedman, whose solicitude as to the progress of the turkey, toward abnormal fatness was only equaled by that of the out-post to dine thereon.

Christmas was now only a week off. The colonel had made a final visit to the roosting place of his lordship the gobbler, and had then and there pronounced the sentence of death upon him. The turkey was to be privately guillotined, roasted, basted, and then eaten with great pomp and ceremony by the colonel and a few of his convivial friends. Up to this time, the presence of so great a prize had been concealed from the balance of the regiment, but now as the fact was become public property, soldiers in twos and in squads used to come up to the residence of the wonderful bird, and gaze in mute admiration upon one who, apparently concious of his just importance, would strut around with all the pomposity of a brand-new lieutenant in his new regimentals, dazzling shoulder-straps, and burnished sword. Many an eye feasted upon the lovely sight, and full many a stomach craved a leg, a joint, a piece of the breast, with a little of the stuffing, while some would have been content with the neck piece. Silently as they came they departed, concious that the colonel's turkey was a divinity which fate had reserved for the illustrious and capacious stomach of the commander of the regiment.

But high treason was afoot in camp, and along the lines of the pickets. Among the throng which marked well the roosting place of the coveted gobbler, was one who thought the bird none too good to grace the tin plates of private soldiers, and he quietly plotted toward that end.

It was the night before Christmas. The full moon bathed the frosty landscape in a sheen of regal splendor. Silence sat upon the face of the earth, save when the pickets moved with measured tread. Upon the famous roosting place sat the colonel's turkey, oblivious of plots and counterplotting of malevolent enemies. Presently an object was seen to flit across the road, then another followed, and finally the third was in sight. These stealthily and silently crept toward the colonel's turkey; one, more daring than his fellows, mounted upward, seized the feathered darling and hugged him to his bosom for a moment, and then handed him carefully down to the waiting confederates. The colonel's turkey was a prisoner!

It was the morning of Christmas. The sun had not yet dissipated the beautiful fretwork of the frost king. Up from the darkey's shanty gracefully curled the smoke of the early morning fire. Out from the door came faithful "Uncle Sam," armed with a deadly knife. Toward the fateful roosting place he hurried, with dire murder in his heart, for the colonel's turkey was doomed. Up the tree he glanced with expectant eye and puzzled expression, *but the bird was not there!* Under the tree was the head of the colonel's gobbler and in the heart of the old slave was deep sorrow.

"Bress my heart if dem boys ain't gone and squeezed dat ar tuckey!" he exclaimed, and silently "Uncle Sam" strode away and hid himself from the face of man.

An hour later, six misguided, unbreveted corporals breakfasted on the colonel's turkey, and when they arose from the repast, feeling guilty both in heart and stomach, a dismembered skeleton was all that remained of the colonel's turkey, and this they interred with military honors, but "not a sound was heard, not a funeral note, as his corse o'er the ramparts they hurried." Later in the day the colonel dined on salt pork, garnished with such adjuncts as desiccated vegetables, army beans and hard-tack, and in the afternoon drilled the soldiers for three weary hours, a part of the time executing movements on the double-quick. Thus the boys stole The Colonel's Christmas Turkey, and he, in a spirit of revenge, drilled them hard.

"Of all sad words of tongue or pen
The saddest are these—it might have been."

MILLING AND AGRICULTURE IN MEXICO.

Millions of bushels of corn and wheat are raised in Mexico, and as nearly all cultivation of soil is done by irrigation, crops are much more certain than in the United States. The ploughs used are wooden ones, like those used in ancient Egypt, made of a straight piece of mesquite timber, a yard long, pointed at one end, and wedge-shaped at the bottom. On top of this, set at an angle of, say, 25 degrees, is a long pole, which, going forward, is attached to a cross bar, which is tied to the horns of oxen. On the rear end a single upright stick serves for the handles, by which the peon guides his plough. With this primitive instrument the husbandman ploughs a gutter about three inches deep and five inches broad at the top, and his work, except sowing and covering, is done. When the wheat is cut and housed and stacked (and this is done in April and May) it is spread upon an adobe floor surrounded by a wall of adobe six feet high, and upon this are turned in a number of wild horses from the range. Young boys keep them running around until the grain is trodden out, and then the mass is thrown upon another floor on a level with the top of the wall. Here it is cast up with wooden paddles into the air, and the grain separated from the straw and chaff by the wind. Nearly all the food eaten by the thousands of people in this country consists of grain. There are no small mills, very few mills of any size, and no mills for grinding corn. All the poor and most of the well-to-do eat corn, and to reduce it to meal they must, each for his own family, pound the corn with one rock upon another.

The question of burning coal in a wet or dry state is still being discussed in the English journals, a large amount of both theory and practical information being set forth. One writer says that, although it is generally conceded to be true that wet bituminous coal will not produce as large a quantity of steam in a boiler as dry coal, there are few figures to substantiate this. The results of a series of tests, made recently with much care, are regarded as having considerable weight in the determination of the points involved. It appeared that a mass of washed slack holding eighteen per cent of water, and nine and nine-tenths per cent of ash, evaporated five and seven-tenths pounds of water per pound of fuel, while the same coal, with only three per cent of water, made from eight to eight and five-tenths pounds of steam; making due allowance for moisture by reducing to a standard of like quantities of coal free from moisture, a direct loss of fourteen per cent is shown in using wet coal.

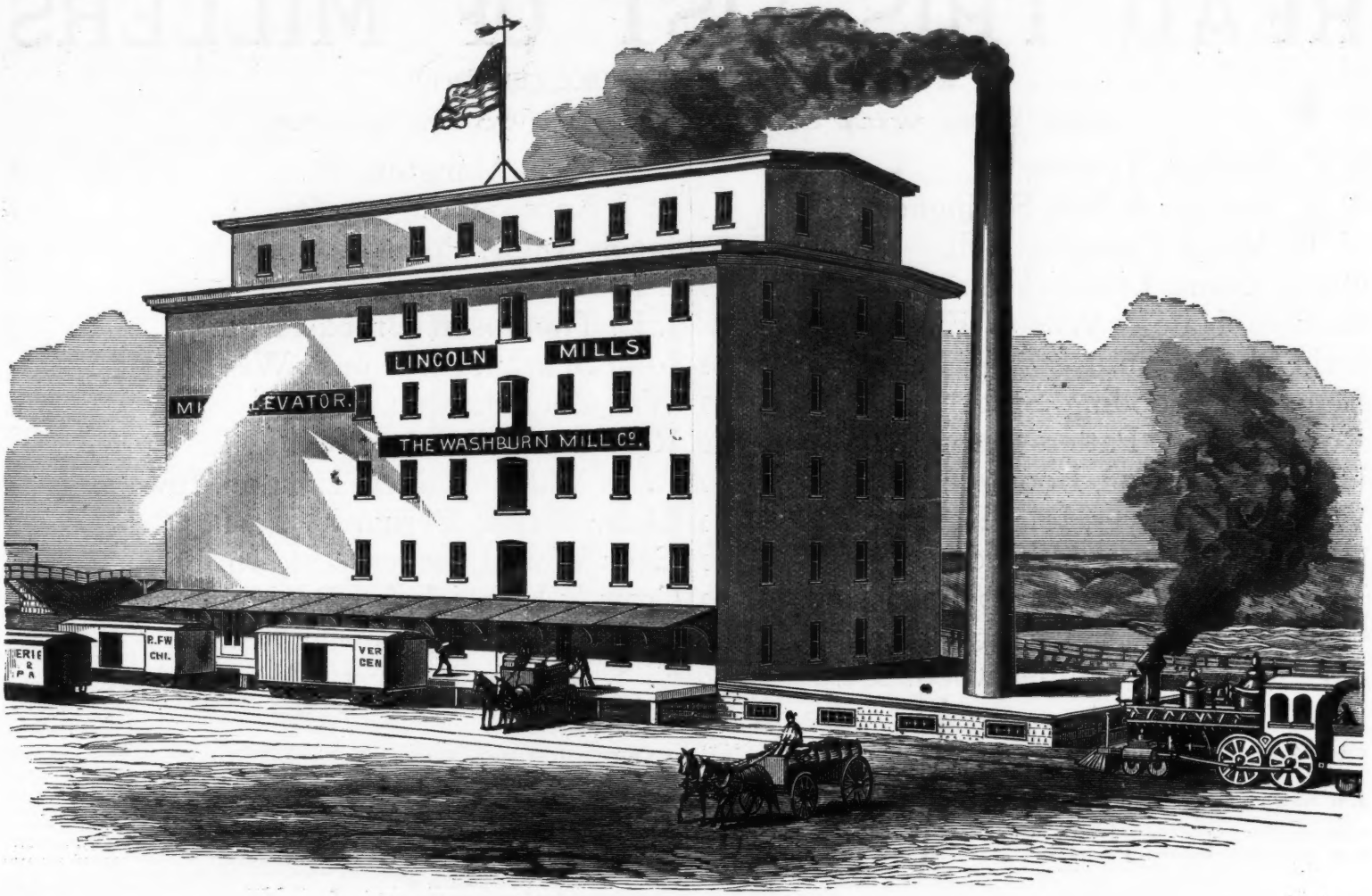
Foreign journals report an arrangement for producing brilliant light by the combination of gas and electricity. It consists of an ordinary gas flame, through which passes a curved metallic rod provided with means for counteracting the effects of overheating under the action of the current. A cool, bright light is produced, of far better quality than gas alone. The report states that the platinum does not require a great intensity of current to make it supply an ordinary light with one or two small currents. The cost is said to be a third less than that of the gas supplied by the gas companies.

W. D. WASHBURN, President. *J. E. STEVENS, JR., Manager.* *W. D. HALE, Treasurer.*

The Washburn Mill Co.,

MERCHANT MILLERS

MINNEAPOLIS, MINN.



General Office, 40 Washington Avenue South.

PRIETORS

LINCOLN MILL,

ANOKA, MINNESOTA,

800 Barrels Daily Capacity.

LESSEES

PALISADE MILL,

MINNEAPOLIS, MINN.

1200 Barrels Daily Capacity.

MANUFACTURE THE FOLLOWING BRANDS OF CHOICE SPRING WHEAT FLOUR:

Washburn's Best.	**Fifth Avenue.**	**Saratoga.**	**Lincoln.**
Washburn's Fancy.	**Royal Rose.**	**Balmoral.**	**Sterling.**
Beacon Street.	**Nonpareil.**	**Saint Anthony.**	**Palisade.**

J. T. WALTER'S DOUBLE CURRENT

MIDDLINGS PURIFIER

HAS MORE GOOD POINTS THAN ALL OTHER MACHINES COMBINED.

It makes Purer Middlings, Cleaner Offal, and Lighter Dust Room Stuff. It is the Smallest Machine in use and the only one that has an Automatic Separating Feeder, and a Perfect Cloth Cleaner. It is the only Machine that settles the heavy dust and lets the light fuzz into the Dust Room. It is the only Machine that takes out the heavy specks between each number of cloth.

READ THIS LIST OF MILLERS

WHO ARE USING THE "DOUBLE CURRENT,"

AND WHO WILL GLADLY TESTIFY TO ITS MERITS.

S. C. Stewart, Tyrone, Pa.	1	A. J. Rice, Abington, Pa.	2
S. N. Ingram & Son, Springfield, Mo.	1	A. J. Kern, Slatington, Pa.	1
N. D. Mires, Paragon, Neb.	2	Jacob Ruble, Point Morion, Pa.	1
Owen Evans, Limerick, Pa.	1	J. L. Sharp, Sunnyside, N. J.	1
Nichols, Hale & Wilson, Eureka, Kans.		J. D. Thompson, Brookside, N. J.	1
Irvin Shaneman, Reading, Pa.	1	John Schrauth, Theresa, Wis.	1
Benjamin Wooding, Stockertown, Pa.	1	Wm. Zuck, Easton, Pa.	2
Robert Craig, Pattersville, N. J.	2	R. E. Beach, Wolcott, N. Y.	1
H. N. VanDuyne, Boonton, N. J.	1	L. D. Williams, New London, Iowa.	1
Waters & Thayer, Iola, Kansas,	1	Chas. Barker, Bernardsville, N. J.	2
W. & E. Thomas, Milford, N. J.	1	Enos Wetzel, Ackermantown, Pa.	
Newton Geissinger, Broodheadsville, Pa.	1	Crow & Leftwich, St. Paul, Neb.	
Cornelius Stewart, Changewater, N. J.		J. & S. A. Lum, Renwick, Iowa.	
J. J. Schnitzins, Collingswood, N. J.	2	C. J. Trimmer, West Bloomfield, N. Y.	

REFER TO

Enos Wetzell, of Ackermantown, Pa., says:

"I am very sorry I ever saw any other machine. Since adding the Double Current, have improved my flour fully two grades."

J. B. Mauser, of Trelchlers, Pa., says:

"You ask how I like the 'Double Current.' After using one six weeks I order six more, discarding my old machines. You can judge from this how I like them."

J. A. Butz, of Cressona, Pa., says:

"Inclosed please find check for $——, amount in full for the Double Current Purifier. I like it better than anything I ever saw. The water is very low at present, but I find your machine makes me very little trouble. The power taken is scarcely perceptible."

Joseph Berger, of Tyrone, Pa., says:

"Inclosed find check for amount of machine. Your Purifier does all you claim for it. It does excellent work on the midd ings, but it certainly will do good work on coarse middlings which are more easily purified."

Gustus Scharnke, of North Freedom, Wis., says:

"Inclosed find draft for Purifier. Your system of bolting is the best I ever saw. The Purifier gives perfect satisfaction, and I am making the closest yield and best flour I have ever made."

J. & S. A. Lum, of Renwick, Iowa, says:

"Your Purifier works better than any we have ever used, and there is no waste in the dust room. We do not have to regulate it every day. It runs without any attention, except oiling once a day."

G. Campbell, of Motts Corners, N. Y., says:

"The machine works well. I consider your cloth cleaner a good one."

L. S. Messinger, of Stockertown, Pa., says:

"If any other firm were to put their machines in as a gift I would not accept them. I have examined a number of so-called first-class machines, and find none that take so little power and do their work so economically as the 'Double Current.'"

Levi Cressman, of Stewartsville, N. J., says:

"After two years waiting to see which was the best, I ran across your machine and found it was the one I wanted, as it comes nearer perfection than anything I have ever seen. Since putting it in I grind five bushels of wheat where I used to grind but one."

J. J. Morton, of Granby, Mo., says:

"I have been running the Double Current since January 1, and cheerfully recommend it to all in want of a good purifier. It is the best machine I have ever run. The —— machine has been one of the 'brag' machines, but the Double Current is far ahead of it or any other machine I have ever seen. You name those machines rightly when you call them old-fashioned."

Hammond & Co., of Argonia, Kas., say:

"Your machine is 'boss.' It is, in my estimation, the end of improvement. It is not only the easiest operated, but is the most economical of all the different machines I ever ran. Your feeder is the most ingenious device I ever saw. I can say I have not lost five minutes' time in regulating it, as it regulates itself and does not choke itself like other automatic feeds."

WRITE FOR SPECIAL DISCOUNTS.

To put an end to any erroneous statements which unprincipled manufacturers are using or may use as a dodge to sell their old-fashioned, single sieve machines, I give the following written guarantee with each machine, and am able to back up all I say.

EASTON, PA.,.....188....

Having sold to.....of.....of Walter's Double Current Middlings Purifiers, I hereby agree to defend the purchaser against the claims of any and all parties claiming infringement of patent at my own expense, and to pay any and all judgments which may be obtained against the said.....by reason of the use of my machine. Refer to First National Bank, Easton, Pa.

J. T. WALTER.

Other manufacturers have found that I have discovered the true principle of purifying middlings, and are trying to imitate. Beware of infringement. I shall prosecute infringers to the full extent of the law. As will seen by above guarantee, all parties buying the Double Current will be protected against any lawsuit. Buy only from parties that are able and willing to protect you.

☞ To those parties using the old-fashioned single-sieve machines, and believing them to be the best, because they have tried no others, I wish to say that I will put Double Current Purifiers into their mills at my own expense, and if after one month's trial they are not fully satisfied that they make CLEANER MIDDLINGS, CLEANER TAILINGS, and LIGHTER DUST ROOM STUFF than the ones displaced, I will replace them, and pay all reasonable charges for loss of time caused by the change.

For Further Information, Address **J. T. WALTER, Easton, Pa.**

A ST. LOUIS MILL.

ELLO, Anchor mills?"

"Hello!"

"Is Mr. Crangle in the office?"

"Zhr—zhr—kakahk—z—"sang the telephone, "HELLO!"

"Well, how is it?"

"Who are you?"

"NORTHWESTERN MILLER—Is Mr. Crangle in the office?"

"Yes, sir; and he—zhr zhr—kuh——"

In fifteen minutes I had him by the hand.

"A pretty office, Mr. Crangle, and quite away from the noise of the mill."

"Yes," said C., "this has a very we-travel-in-our-own-palace-car kind of a look," and it had.

I looked at the lady telegrapher busily transmitting messages, and judging from the expression of her face—not altogether commercial in its nature, I felt an inclination to make some playful remark in the connection, but Crangle looked too sedate. He was writing some memoranda. I picked up a letter head. It was inscribed Anchor Milling Co., Geo. D. Capen, president.

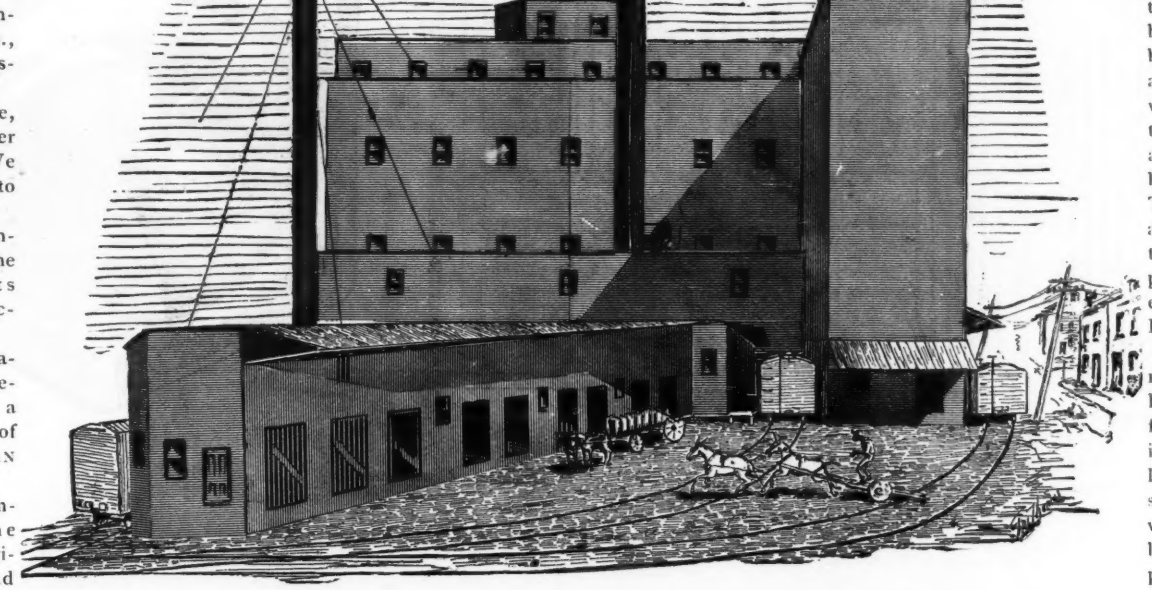
We left the office, young lady, letter head and all. We crossed the street to the mill.

Next to Mrs. Crangle and the twins, the engine takes its place in John's affections.

This wonderful machine has been described in detail in a previous number of the NORTHWESTERN MILLER.

John Keller, an importation from the Neckar, is the engineer. He oils and caresses his charge as a wet nurse would a royal baby.

The engine is a mammoth Harris-Corliss, manufactured by Wm. A. Harris, of Providence, R. I., 1,500 horse power. It carries a band fly wheel 24 feet six inches in diameter, 42 inches in face and weighing 37,000 pounds. This wheel makes 44 revolutions per minute. Its shaft is of wrought iron 20¼ inches in diameter, and 22 feet 6 inches long. The total weight of the engine is 77,000 pounds. The boilers are 16 in number, all of Otis steel. Their dimensions are 20 feet in length by a diameter of 46 inches. Each boiler has eight 7 inch flues. The boilers are supplied by one upright and two horizontal pumps, one large beam doctor and an injector. They are fitted also with Keller's combination patent feed-water heater—an invention by John Keller, the engineer. This heater produces pure water at 212°. The engine room is handsomely finished in marble and oiled walnut.



From the engine room we passed to the mill building, a substantial structure 75x100 feet and six stories high.

There was an awful roar of moving machinery. Mr. Crangle placed me in juxtaposition with a gentleman in side whiskers and a suit covered with flour. I could tell by the apoplectic swelling of C.'s jugular that he was in the agonies of an introduction. I went through a bit of pantomime which was meant to express that I felt the honor, but I couldn't catch the name.

He beckoned us both outside, where in the comparative quiet of the noisy street, I learned that the gentleman in white was Mr. Gillespie, the head miller.

On the opposite side of the street there is a place called the Angel's Rest—but I am digressing.

Before we again essayed the mill I telephoned for one Smith, a man in the gas fixture business on Olive street and who understands the deaf and dumb alphabet. Through his interpretations I gleaned the following on my trip through the building:

The basement holds all the driving gear, line shafts, pulleys, etc. These things were deposited there by the Todd Mill Furnishing Co., in Nov. 1881.

The first floor is fitted with nine runs of stone (the head miller said the readers would understand the expression.) These are used to reduce middlings—from which I infer that middlings as a rule have to be reduced. There are also 23 sets of double rolls, 7 made by Allis, 4 by Downton and the balance by Stout, Mills & Temple. In the language of the miller "we finish on these rolls." To the north end of this floor are 18 Jonathan Mills machines and elsewhere in the remaining available space is located one Richmond bran duster. Now there's some sense in that. I brushed the flour out of my eyes and wondered why they didn't get more dusters. If I run the place I'd have enough dusters if I had to trade off some of the Jonathan Mills machines.

The second floor has the cleaning machinery as follows: 2 Becker brushes, 1 Richmond brush, 1 Richmond scourer and polisher, upright, also 4 Smith purifiers, 2 United States bran dusters, 1 Richmond horizontal bran duster, 1 Richmond upright bran duster, 1 Garden City brush machine and 19 finishing reels. My goodness!

The third floor has a politely worded notice to the effect that Mr. Crangle objects to having waste left around in barrels or boxes. All old waste must go to the engine room. I asked the miller if there was much waste to a mill of that size. He looked a little irrelevant and replied negatively. The machinery here consists of 7 Smith purifiers, 2 United States bran dusters, 19 reels, 6 break wheels, and one fan for cheat—I don't like that.

The fourth floor has 2 Barnard & Leas separators, 9 Smith purifiers, and the request to take the waste to the boiler room.

The fifth floor, or attic, holds 3 Throop centrifugal reels, and 4 other reels, neither Throop or centrifugal, but just plain reels.

The sixth floor is a cupola containing the stands of elevators which give the fall to grain en route for the reels.

The road down from the sixth floor furnished very much the same scenery we noted in our ascent. From the level of the first floor we found the channel to the bran room. This is furnished with 2 Barnard & Leas bran packers and 1 Barnard & Leas shipstuff packer.

The bran packers run about 14 sacks per hour.

The room is 75x40 feet, and connects with warehouse and platform by skids and an endless chain.

Below this bran room is the flour packing room with 4 Barnard & Leas flour packers, each yielding 25 bbls. per hour. Leaving this we took private seats on the endless chain, and were taken noiselessly to the warehouse, a building 400 feet long by 60 wide. There is a mixing mill in the warehouse for mixing two grades of flour and producing a third by the combination. This mixing mill alone is capable of turning out 1,200 bbls. per day. It is provided with 3 Barnard & Leas packers.

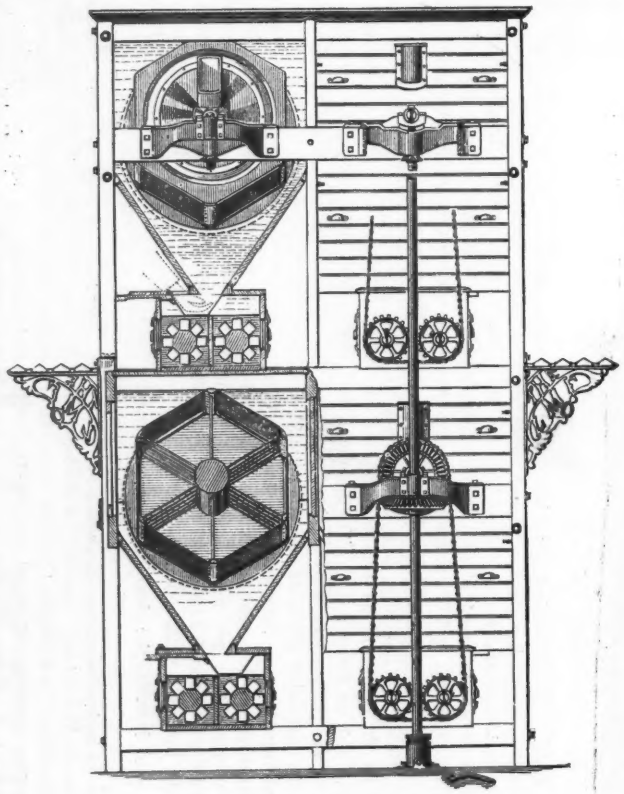
The elevator to the north of the warehouse and separated from it by a car track is supplied with 2 large Barnard & Leas separators and 2 conveyors. There are 8 bins with a total capacity of 75,000 bus. There are two sets of scales in the yard for wagon and car load stuff. The mill property in its entirety is supplied and relieved by three private switches one on each side of the warehouse and one north of the elevator. The southern switch is used both for receiving coal and shipping flour. The northern one conveys grain to the elevator and the middle one feeds both elevator and warehouse. They are designated respectively coal, grain, and flour tracks. Their capacity total is 50 cars. Altogether no mill has a more commanding avenue or location.

Its clientage—if I may use the term—covers every country in commercial relations with our own and for an institution but two years in the ring it seems to mind an unusual record. The cut gives a fair idea of the property as viewed from the east, but a most inadequate idea of its franchises. These are gigantic and still growing.

Young & Co., of Milwaukee, estimate, as a result of numerous reports, that the percentage of the wheat surplus already marketed is about as follows: Ohio and Indiana, 75 per cent.; Dakota, 80 per cent.; Minnesota, about 60@65 per cent.; Nebraska and Kansas, 65 per cent.; Missouri, 60 per cent.

THE LIMA MILL FURNISHING COMPANY,

OUR EXCLUSIVE SPECIALTIES.



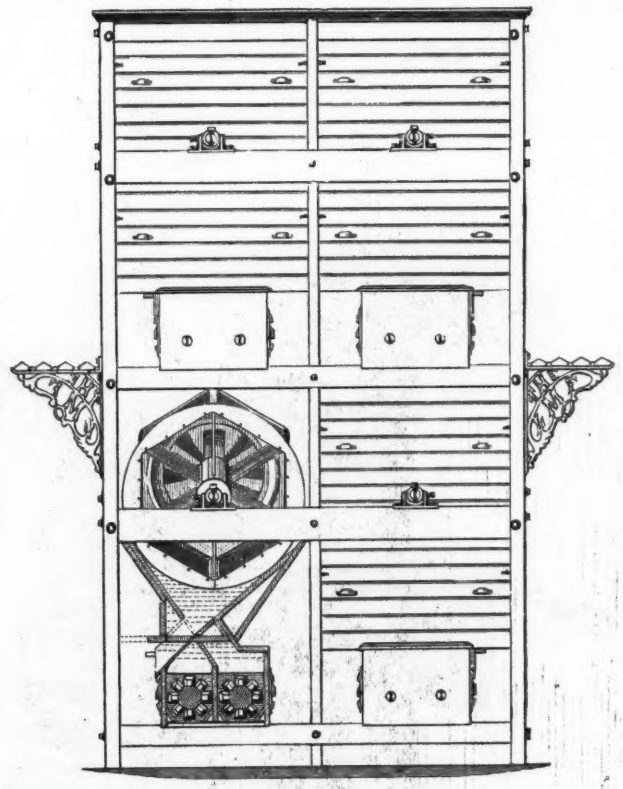


FIG. I.—HEAD AND TAIL VIEWS OF A FOUR-REEL LIMA BOLTING CHEST.

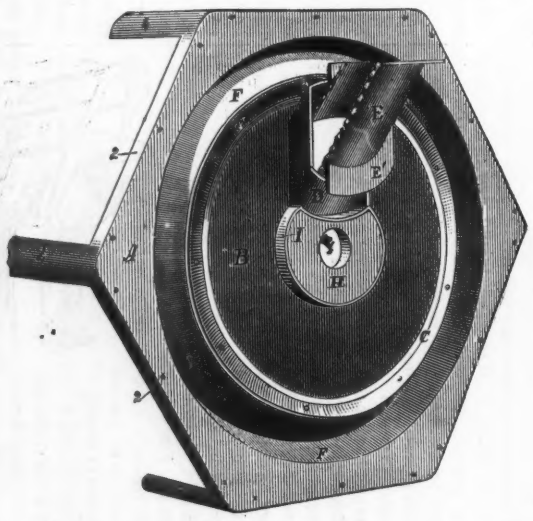


FIG. II.—OUTSIDE VIEW OF TIGHT REEL HEAD.

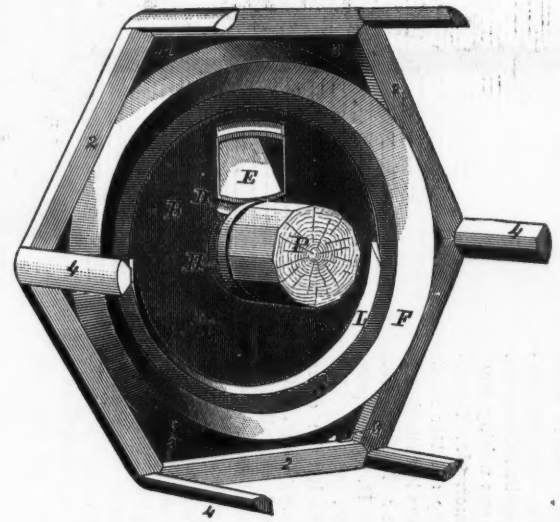


FIG. III.—INSIDE VIEW OF TIGHT REEL HEAD.

ALL MACHINES FULLY COVERED BY LETTERS PATENT.

SOLE MANUFACTURERS OF

THE LIMA BOLTING CHEST

THE LIMA ASPIRATING CHEST, THE LIMA SCALPING CHEST,

The Lima Middlings Purifier,

THE LIMA DROP LIFT STEP, and

THE LIMA IMPROVED NEW PROCESS BOLTING CHEST.

FOR CIRCULAR AND PRICE LIST No. 25, ADDRESS

THE LIMA MILL FURNISHING CO.,

LIMA, : OHIO.

Millers visiting Chicago, Ill., can examine our Bolting Chests by calling on

WM. E. CATLIN & CO.,

No. 48 SOUTH CANAL ST.

READ THE FOLLOWING LETTER:

CLEVELAND, OHIO, Sept. 13th, 1883.

THE LIMA MILL FURNISHING CO., Lima, Ohio:

Gentlemen:—I spent the day yesterday in the Wilmington Mills at Wilmington, Ohio, where you lately placed one of your Four and Two Reel Lima Bolting Chests, and which are giving perfect satisfaction. But through some cause in your cloth department you got six feet of No. 7 cloth on Reel No. 3, instead of six feet of No. 6 cloth as per my diagram. You will please express me six feet of No. 6 cloth and I will return the No. 7 cloth at once. This was the only difficulty I have experienced with the workings of your chests and, owing to the construction of your "Lima Bolting Chests" allowing the tailings to be thrown into conveyor or outside of chest, by means of the *inverted V shaped* cut-off, I have been able to bridge over the present difficulty. You may refer any parties contemplating the purchase of Bolting Machines to me, as I have used many different makes of Bolting Chests, but I have yet to find the chest that contains as many practical features and improvements as you have in your Lima Bolting Chest.

Yours Respectfully,

WM. F. PUTNAM.

Head Miller of THE CLEVELAND MILLING CO., Cleveland, Ohio.

THE NORTHWESTERN MILLER.

MILLING IN ST. LOUIS IN 1883.

BY OUR REGULAR CORRESPONDENT.

AS the end of the year approaches and the season of scanning over accounts is at hand, we think it would perhaps be of interest to millers to know how the milling interests have fared in this section during the year. Knowing that to rely on hearsay is rather a flimsy foundation for a reliable article, personal inquiries were made, and a general summary thereof is here given. The general stereotyped answer to the question "How does this year's business compare with last year's?" was "It has been much larger as to output, but almost utterly void of margin or profit." This assertion was general, and in many cases emphasized with a big D. That this year's work has not been profitable to millers, none will deny, the falling off in foreign demand, it is well known, being unprecedented for many years. This, coupled with the fact that the production has been largely increased by the erection of new mills and the changing of old ones to the roller system, makes a very clear case. A close computation of our facilities for production alone, shows that. In 1872 the average daily capacity of all the mills was 10,700, while this year it is 16,550, making an increase of 5,750 barrels, or a gain of over one-third. Adding the increase in surrounding sections, which averages about the same, it will be clearly seen that the cry of over production is well raised.

In mill building and remodeling this city has made rapid strides during the year, more so, no doubt, than any other city in the union, and all the mills are running under the new process. Among the new ones added to the list are the Atlantic, 850 bbls.; President, 850 bbls.; Merrimac, 400 bbls., and the Planet 1,000 bbls. The remodeled and enlarged mills are many, namely the Planet, enlarged to 1,800 bbls.; the Anchor to 1,100 bbls.; Saxony to 600 bbls.; Camp Spring to 800 bbls; St. George to 400 barrels; Hezel to 400 bbls., and the United States to 600 bbls. Of the remaining ones several have added many of the latest improved machines, and an approximate calculation shows an increase in qualities of flour manufactured of about 25 per cent. The average running time of each mill exceeds former years, although considerable time was lost between crops. At present, the steadiness of the output far surpasses previous records. To more clearly present the status of the matter, however, an abbreviated statement of each mill is here given.

The Camp Spring mill, although one of our oldest, is, also, one of the best. It was changed to the full roller system by Edw. P. Allis & Co., of Milwaukee, early in the spring. The mill building was enlarged by the addition of another story, making it five stories in height. By these improvements its capacity has been increased from 450 to 750 barrels per day, which figure it has steadily maintained since it started up. Another change or rather addition made was the associating of W. H. Wulze, one of our youngest and most energetic millers, with the company as vice president. Mr. Wulze underwent many years' experience with the Park mill and his good work since going to the Camp Spring bears ample testimony of his thorough knowledge of the milling business. By changing to the roller system, the Camp Spring has been in position to place two more brands before the public the names of which speak for themselves warmly, "Our Diploma," fancy patent, and "Best," a straight flour.

The Atlantic mill, better known as "Bain's" mill is one of our new acquisitions, having been started up this year. This mill has a world-wide reputation for its excellent work, and its system and furnishing practically illustrate the energy of the proprietor, Mr. Geo. Bain, and the knowledge of the well known millwright, Robt. L. Downton, who built it. The mill has run about eight months during the year, having been shut down during the heated term. Its capacity is 850 barrels per day, although it occasionally, under the able manipulation of head miller Andrew Thomas, sometimes passes that figure. During the year the Atlantic has added another brand to its list—"Ultimate," a fancy patent which meets with a strong and steady demand and is daily growing more popular with the trade.

The Phoenix, also owned by the Atlantic Milling Co., is one of our old mills and although a first-class one, its position in the heart of the city, quite a distance from railroad tracks, makes it very expensive to operate, hence it is run only when the price of flour will justify doing so. Its capacity is 600 barrels per day and it is in charge of head miller Jno. Dolan.

The Planet mill at Litchfield, Ill., now the largest winter wheat mill in the world, was enlarged in the spring and now averages an output of 1,800 barrels per day. A detailed description of this mill would occupy too much space in this column, but will be found in another part of this issue. Perhaps one of the most noteworthy changes was the changing of head millers, whereby the services of Mr. A. M. Popplestone, of Minneapolis, were secured. The large and extensive experience of the gentleman has already manifested itself in the Planet production, much to the profit of his employers. A magnificent Atlas-Corliss engine, 32x48, is also one of its recent additions.

The Hezel, of East St. Louis, was remodeled in April last by the Todd-Stanley Mill Furnishing Co. and its output increased to 400 barrels. The situation of this mill for railroad facilities is most admirable, being built on the east side, the terminus of the principal roads. Since its completion it has run steadily with the exception of a short period during high water.

The Saxony mill can be classed among the veterans, but since its remodeling in the spring, by I. Q. Halteman & Co., it has imbibed new life and is again young and vigorous. It easily holds its own and always has orders booked ahead. Its run during the year has been tolerably steady, it losing a little time when the old crop was "tailing" out and while it was in the hands of the millwrights. Messrs. E. W. Leonhardt & Co. are the proprietors and the mill's capacity is 400 barrels daily.

The St. George mill, operated by Henry Kalbfleisch & Co., boasts of a new boiler and engine house added during the year, greatly increasing its grinding room and giving more space for milling machinery, an extensive and varied line of which has been added. Its production of 400 barrels a day is easily handled and the St. George brands meet with much favor.

The United States mill, owned by E. Goddard & Sons, is the last mill on the remodeled list, and has just been completed by Messrs. I. Q. Halteman & Co. All the latest improvements in milling appliances have been placed in this mill, and we note among them 56 pairs of Rickerson's six inch rolls. Another story has been added to the building, and when started up it is expected it will make 600 barrels daily.

E. O. Stanard & Co.'s Alton City mill is one of our veteran mills, but nobly keeps in the front rank, and its products are eagerly sought after. During the past year it has run steadily on full time, averaging a daily output of 600 barrels. One centrifugal reel, a scourer and brush machine, as well as two Downton smooth rolls have been added to its equipment. Mr. Wm. Brown is its head miller, and has a world wide reputation attained by "Stanard Royal Patent" flour, which is manufactured under his manipulations.

The Franklin mill, the oldest of our mills in operation, still keeps up its unceasing grind commenced away back in the '40's. Standing as it does in the midst of the busiest portion of the city, it rises up as a monument of milling in its primitive period, and although equipped with rolls and modern improvements, its quaint architecture and frame construction reveal the ideas of long ago. The Franklin will soon be abandoned, as its site has become totally unfit for milling, but very valuable for business purposes. Besides, the new mill owned by the same company is completed, and the Franklin crew will be transferred to it. The capacity of the Franklin of late has been 400 barrels per day.

The Eagle mill, owned by E. O. Stanard & Co., is one of our old reliable ones and a mill whose brands are known and sought after far and wide. During the past year it has run steadily and on full time, averaging a daily output of 800 barrels. All the latest improved appliances have been added as soon as found to be worthy. Hence it is classed an A No. 1 roller mill in every respect. Under the care of Head Miller Charles Brown, this mill has achieved a splendid reputation for its production and has always orders booked ahead. There have been added to its equipment during the year a double set of rolls, 2 centrifugal reels, and 2 detachers, the invention of Head Miller Brown.

W. H. Bronson, the junior partner of the firm, reports that, all things considered, the Eagle's business during '83 has been very good and satisfactory. Its chief brand, "Stanard Royal Patent," commanding excellent figures in the east and on the other side.

The Anchor mill, operated by the Anchor Milling Co., of which John Crangle is president, is, comparatively speaking, a new mill. Built a short distance from the site of the Yeager mill, burned down a few years ago, it is in fact its successor, many of the attaches of the Yeager mill being now connected with the Anchor. During the past year the Anchor has made extensive improvement in its capacity and output, almost doubling the latter. Prominent among its additions is a mammoth vertical Corliss engine with cylinder 42x60, the largest of its kind in the west, a battery of two 20-foot 8-flue boilers, and large and small water heaters, 9 double sets of rolls, 2 8-reel bolting chests, 2 bran dusters, 2 packers, 1 Richmond wheat scourer and polisher and several dust collectors, and other minor machines which together increase its capacity from 750 barrels to 1,100 barrels and greatly improve its grades. The Anchor is noted for its steady runs, and has made the largest run on record. Previous to its adding the new engine it was hampered some by the want of sufficient power, but since the power has been increased its machinery is turned over as easily and gently as that of a watch. The Anchor's business this year has been much larger than any previous year, but so far as any miller can truthfully conclude by personal experience, not so profitable as the year past. A large iron clad warehouse, 50x150 feet, has been erected next to the elevator, which, with its three private railroad switches, gives it the best shipping facilities of any mill in the city.

The Crown Roller is one of our mills which has a good record for steady running. It was changed to the full roller system last spring, and its grinding is now done by 26 sets of Cranson-Dawson rolls. By this change its capacity was increased from 400 to 600 barrels per day, all of which is disposed of as soon as placed on the market. Many other minor but essential changes have also been made, so that it is classed as a first-class full roller mill. Its work during the past year has been far above other years both in excellence and output, and quite satisfactory to its proprietors. A change was also made last spring in head millers, and it is now in charge of Head Miller Jas. W. Clark, assisted by J. F. Clark, two gentlemen who have had many years' experience in this section, and thoroughly understand their business, a fact which the popular demand for the Crown Roller brands amply verifies.

H. B. Eggers & Co.'s new "Merrimac," on Eighth street and Clark avenue, is the latest acquisition to our milling circle. It was started up only a few weeks ago, and is a successor to the Merrimac mill burned down a few miles from this city during the past summer.

The mill is of a full roller system, having all th latest patents in mill machinery and is worked by a system which embodies the most recent manipulation of stock. The Dehner-Wuerpel Mill Furnishing Co. built it, and 16 double sets of Stevens rolls are used. Its capacity is 400 barrels a day, which amount it easily turns out. Besides the mill proper a large warehouse has been built, in a part of which the offices are located. The boilers and engine room are also in a seprate building, leaving the entire operative plant solely in the mill building. Herman Balting is head miller and is ably assisted by Chas. Stay. We hope in the near future to give a full detail of this excellent mill.

There are several other mills on our list, but answers to our inquiries have failed to reach us in time

FIG. III.—INSIDE VIEW OF TIGHT REEL HEAD. Head Miller of THE CLEVELAND MILLING Co., Cleveland, Ohio.

FIG. II.—OUTSIDE VIEW OF TIGHT REEL HEAD.

J. M. MOORE & CO.,

213 N. 8th St., ST. LOUIS, MO.

NATIONAL MILLING EXCHANGE.

The most extensive and successful Milling Agency in the world. We can refer to hundreds for whom we have been successful in finding buyers and trades for such property all over the country, and our new paper, "Moore's Exchange Bulletin," will be put within reach of every miller in the United States, so that to buyer and seller we offer advantages unequaled by those of any concern in the world. We have milling property in nearly every State in the Union, and it costs buyers nothing to learn through us of hundreds of good openings. ***Refer to the following as numbered below if you want to buy and have money or good property to offer:***

501. ROLLER MILL IN ADAMS CO., ILL., on C., B. & Q. R. R. and Wabash & Pacific; 2 runs of 4 ft. buhrs; 9 sets of Nordyke & Marmon rolls, with all necessary cleaning and purifying machinery, very latest and most desirable; building, 45x60; good ten (10) ft. basement and 2 stories above; cooper shop, warehouse and dwelling, two acres of land, and abundance of water in the dryest season; 75 H. P. engine and boiler; good wheat section as in the state; mill new and cost over $20,000. Owners have no capital to run it, and will sell on very liberal terms, or will take merchandise for a part of price. A rare opportunity to secure very desirable property in fine section and every facility for shipping.

498. STEAM FLOURING MILL IN TOWN 2,000, TWO R. R's., WAYNE CO., ILL. Strong frame, 40x40; stone foundation; 3½ story, over basement; boiler and engine room of brick, iron roof; nearly new iron stack; 4 runs of buhrs, 3 4 ft., 1 32 in., run by gears; 7 pairs of Stevens rolls; extractor; decorticator; rolling screen; Becker brush; 4 reel chest, 20 ft. long, with double conveyors; 3 reel chest, 16 ft. long, double conveyors; 2 reel chest 14 ft. long, double conveyors; 2 reel chest, 8 ft. long, single conveyors; single reel, 22 ft. long; 5 scalping reels, 4½ ft.; No. 6 Garden City purifier; No. 2 Snow Flake purifier; corn buhr, 3½ ft.; corn bolt and sheller; bran duster; flour packer; 6 pairs Fairbank scales, including large wagon scales; exchange about 40,000 bushels yearly. Boiler, 26 ft. by 48 in., 6 flues; engine, 14x24; large pond; about 2 acres of land; 2 residences. Failure of health only reason for offering this property for sale.

497. STEAM FLOURING MILL IN BOND CO., ILL. Main building, 30x34; 3 story and brick basement; engine and boiler room, 18x30; store room, 14x30. Boiler, 26 ft. by 42 in.; engine, 30 in. stroke; 2 runs of buhrs, one 4 ft., the other 30 in. New dwelling, 28x32; over 5 acres of land and all necessary outbuildings; large pond and good well; will be sold very low and on easy terms.

495. STEAM FLOURING MILL IN R. R. TOWN 3,000, GEORGIA. Cars load and unload at mill door; built in 1882 by Nordyke & Marmon Co. 2 sets Esopus stones, 48 in., for corn; 1 French buhr, 42 in., wheat; 1 32 in. French buhr for middlings; 1 pair smooth rolls for tailings, iron hurst frames; boiler and engine, 42 H. P.; Geo. T. Smith purifier; 4 reel bolting chest, 16 ft. long; bran duster; Eureka smutter; zig-zag separator; flour packer and corn cleaner. All machinery new, and put up in most substantial manner Mill running night and day; no better reputation in the state; large custom trade; no other mill in the place; owner is no miller; only a small amount of cash required.

494. STEAM FLOURING MILL IN SEDGWICK CO., KAS., frame 30x40; 3 story; stone foundation; boiler house brick; iron roof; warehouse 30x40; scale office; general business office; 3 lots 25x140, on railroad; most eligible part of city; 4 runs Obenchein automatic buhrs, 2 on wheat, 1 middlings, 1 corn and feed; 7 flour reels; 1 corn meal bolt; Case double purifier; Empire bran duster; Barnard & Leas separator; California separator and smutter; 8 stands elevators; Hutchinson corn sheller and cleaner; Eureka flour packer; engine and boiler in first-class condition and of the very best construction.

493. THE BEST STEAM FLOURING MILL IN JAY CO., IND., frame building 36x50; 3 story, attic and cellar; brick engine room; 60 H. P. boiler and 50 H, P. engine, using 2 cords of wood ($1.50) daily; storage warehouse 25x50, with two elevators, capacity 20,000 bus.; 3 runs of buhrs on wheat; pony mill and chopper; Case first break and scalper; Allis 9x14 rolls, smooth and corrugated; Richmond separator; Eureka scourer and Becker brush; 9 reels, 20 ft. long, 32 in. diameter; 3 Hunter's purifiers. Custom averages 200 bus. daily; running night and day; profits $4,000 to $6,000 yearly. On R. R.; county seat, 3,500.

491. WATER POWER FLOURING MILL ON THE SPOON RIVER, IN FULTON CO., ILL., on C. B. & Q. R. R.; 10 miles from county seat; as good winter wheat section as in the state, and never failing water power; good frame dam, with solid rock foundation; 3 story and basement; 1 42 in. buhr for wheat; 1 Victor mill (middlings); 1 42 in. buhr for corn; 4 reel bolt 18 ft. long, with double conveyors; 7 sets elevators; Eureka smutter and scourer; 1 zig-zag separator; corn sheller. Mill cost $12,000. Will sell half interest to good miller for $4,000. Owing only to poor health of the owner.

490. FLOURING MILL, WATER POWER, IN FAYETTE CO., IA. Building of brick, 40x80; 6 story, including basement; 4 runs of buhrs and 7 pairs of rolls. New and just equipped; capacity 100 bbls. a day; would sell one-half interest to a thoroughly experienced miller, or the whole property. Location all that could be desired.

488. WATER POWER FLOURING MILL IN SOUTHEASTERN KANSAS, never failing; 80 acres of land; nice grove of timber and best brick clay in the county; good dwelling, stable and cooper shop; mill, 40x40, 3½ story; stone basement; cemented floor; 3 wheat buhrs, 42 in.; 1 middlings buhr, 36 in.; 3 cleaning machines; 6 20 ft. reels; 1 each scalping, dusting and centrifugal reels; double set Allis rolls for bran and tailings; 2 Smith purifiers; 2 Prinz dust catchers; storage for 3,000 bus. wheat; very best wheat section of state; new dam with solid stone abutment, best in the state; 2 66 in. Hoyes turbine wheels; capacity, 100 bbls; trade for all the mill can grind; no other improved water mill with n 50 miles.

485. WATER POWER FLOURING MILL IN IOWA, POWESHIEK CO., on Iowa Central R. R. Building 26x36; 3 story; 3 run French buhrs, 2 4 ft., 1 3 ft. 8 in.; 1 stone for middlings; bolting chest 18 ft. long; bolts for rye and buckwheat; French purifier; 1 each Eureka and California smutter; oat extractor; 2 fanning mills; 2 Rise water wheels, 9 ft. head; water the year round, 90 acres of land and 2 dwelling houses; $1,000 cash, balance to suit, or will exchange for land. Mill now renting for $650 yearly.

481. STEAM FLOURING MILL IN BENTON CO., MO. Building frame, 30x40, nearly new; 3 story, and basement of stone; on R. R. switch; 2 pairs 3½ ft. buhrs, wheat; 1 3 ft. middlings; 1 20 in. corn, driven by ¾ twist belt from main shaft; 5 bolting reels with double conveyors; 1 scalping reel; No. 2 Eureka smutter and brush; Excelsior purifier; Case degerminator; boiler, 22 ft. by 48 in. diameter, 5 11 in. flues; engine nearly new, 12x24; good pond and well, with block of land; finest wheat section in the state; no competition within 20 miles; would sell one-half to a practical miller.

480. FLOURING MILL IN POPE CO., ILL., on the Ohio river; 3 runs of 3½ ft. buhrs, and all necessary cleaning machinery. Small house, 4 rooms, together or separately. Mill $2,500; house $600 to $700. Would take other property in exchange.

477. STEAM FLOURING MILL IN BOND CO., ILL.; Vandalia R. R.; first rate wheat section; building 32 x40, frame, 3 story; stone basement; 3 runs of buhrs; 1 3½ ft., 1 3 ft., 1 2½ ft.; 4 bolting reels; 11 elevators; 1 double La Croix purifier; Barnard & Leas zig-zag decorticator; Barnard & Leas smutter; flour packer; corn meal bolt; engine house, brick, 36x40; 60 H. P. engine; boiler 18 ft. long, 5 ft. diameter, 5 flues. Small dwelling and 20 lots with mill.

475. TWO GRAIN ELEVATORS in western part of the state. Good R. R. town and only ones in the town. Every facility for handling grain, and good section as in the state, shipping 500 to 1,000 car loads yearly. One can be bought for $6,000; the other $2,000.

474. STEAM ROLLER MILL, best town CLAY CO., ILL. Frame, 30x40; 3 story and attic; engine house, 22x45; frame iron siding and roofing; wood and coal house 22x30; good pond and well; 2 acres of land; 8 sets rolls, 9x18, driven by belts; 2 runs buhrs, 1 30 in. middlings; 1 26 in. corn; 6 scalping reels; 2 bolting chests, 1 4 reel the other 2 reel, reels 16 ft. long, double conveyors· 2 No. 3 Geo. T. Smith purifiers; 1 centrifugal reel; Barnard & Leas separator; Richmond combined brush and smutter; corn meal bolt; power corn sheller; 2 pairs scales, 22 stands elevators, on O. & M. R. R. No other improved mill in the country; fuel very low. Only reason for selling, failing health of owner.

470. STEAM FLOURING MILL IN WASHINGTON CO., ILL., 100 yds. from I. C. R. R. Cooper shop and stable connected with mill, which is of frame, 52x57, 3 story; 6 sets of reduction rolls; 2 sets of smooth rolls; 2 runs 42 in. and 1 set 36 in. old stock French buhrs; Fairbank's scales, 6 ton, 2 platform scales; flour and bran packer; 4 reel chest, 16 ft. long, containing 2 38 in. reels and 2 32 in.; 1 2 reel chest, 16 ft. long, with 2 32 in. reels; both chests have double conveyors; 3 No. 2 G. T. Smith purifiers; new automatic 150 H. P. engine; brick boiler house and stack, boiler 15 ft. 48 in. diameter, 30 4 in. flues; 125 bbls. capacity.

468. FLOURING MILL (WATER POWER) LOUISA CO., IA., on the Iowa river, saw mill attached; 4 runs of buhrs; 2 bolting chests, 4 reels in each; bolts for corn and buckwheat; flour packer; bran duster; 2 smut machines; oat separator; corn sheller, etc.; 5 Leffel turbine water wheels; saw mill 56 in. rotary saw, driven by 40 inch turbine wheel; over 100 acres good land; owner is no miller and has no money to run the mill. Satisfactory terms will be made with a man having some money.

467. STEAM FLOURING MILL IN GENTRY CO., N. W. MO. Building 30x86, 2½ story; engine room 20x 30 tin roof, iron stack; 3 run 3 ft. buhrs, wheat; 1 30 in. under-runner corn and chop; No. 3 California smutter; large Hughes wheat cleaner; Brandon wheat heater; two reels, 16 ft. by 32 in. for merchant work, and 2 for custom work; Excelsior bran duster; scalper; No. 3 purifier; corn meal bolt, capacity 30 bus. per hour; 8 sets elevators; boiler 22 ft. by 48 in.; 4 8 in. flues; engine 12x24. 3 blocks of land with mill; the best mill in the county; no mill within 10 miles; population 2,000; two railroads.

462. STEAM FLOURING MILL in fine wheat section, HANCOCK CO., ILL. No other mill within 12 miles; frame building, 3 story, including basement, 36x46; engine room, 36x20; 3 runs of buhrs; 1 4 ft. old stock French wheat; 1 16 inch middlings buhr, and one 18 inch corn buhr, underrunner; 1 double bolting chest, 2 reels; 1 single chest, 1 reel; Champion purifier with separating reel attached; Barnard & Leas separator; California smutter; 6 stands of elevators; fanning mill; scales; etc.; engine 12x20, 40 H. P.; tubular boiler 14 ft. long, with 38, 3 inch flues; iron water tank; Stilwell heater; Judson governor; dwelling house, nearly new, 18x36, 2 story with ell, 26x40, 10 rooms, good well and outbuildings, ornamental fruit trees, etc. Mill alone $4,000 cash, or with dwell ng $5,000.

460. STEAM FLOURING MILL IN FRANKLIN CO., MO. 36x50 2 story frame; engine room 24x40; 4 runs of buhrs, each 3½ ft., 3 ft., 2 ft. and 22 in.; 3 bolting chests; 2 single reel chests, 1 20 and the other 10 ft. long with double conveyors; 1 2 reel chest 16 ft. long; 2 separators (Rival & Vandergrift); boiler, 20 ft. by 52 in.; 36 3½ in. flues; engine 14x20; wood $2 per cord; nearest mill 7 miles; also circular saw mill, with 1 large and 1 small top saw. Men with moderate capital should investigate this chance,

459. WATER POWER FLOURING MILL, IN BUREAU CO., ILL., building frame 30x36, 3-story and attic, capacity 50 to 70 bbls. in 24 hours, gradual reduction system, first break 1-14 in. Obenchain mill, second Case reducer, third 14 in. mill, fourth 20 in. mill, fifth 20 in. mill, smooth rolls for germ middlings, and 20 in. mill for fine middlings, 42 in. Little Giant water wheel, wheat passes through 3 cleaners, arranged for 2 or 3 grades of flour, 2 20 in. automatic mills for corn chop, rye and buckwheat, elevators, smutter and belts, driven by 48 in. Eclipse turbine water wheel, 64 acres of land and 3 good dwellings, at important R. R. junction, for lack of capital will sell low.

458. STEAM MILL IN CITY, ON THE OHIO RIVER, with all the latest improvements for making highest grades of flour, 4 runs of buhrs, 2 3½ ft. wheat, 1 3-ft. middlings, 1 3½ ft. corn, set of Case smooth rolls for germ, double chest 4 reels, single chest 2 reels, double conveyors under each, arranged for full patent, or No. 1 straight, Victor brush and separator, Jones middlings purifier, splendid boiler and engine, coal 4 cts. a bushel, capacity 100 bbls. each flour and meal in 24 hours, offered extremely low.

457. WATER POWER FLOURING AND SAW MILL IN COLUMBIANA CO., OHIO, as good an agriculturai district as in the state, on N. Y. P. & C. R. R., building frame 40x50, 2-story and attic with stone basement, 3 turbine water wheels, 3 runs of buhrs, 2 48-in. each on wheat and corn, 1 36-in. middlings, California brush smutter, Excelsior purifier, 5 reels 6 ft. long, by 30 in. diameter, double conveyors, one 4 reel chest, single reel 16 ft. long 30 in. diameter, 1 single reel chest for rye and buckwheat, 9 elevators, stock bins, scales, corn sheller, &c., saw mill 100 ft. from flour mill, building 16x48, 1-story, 64 in. saw, both mil's just overhauled at a cost of over $4,000, will sell for $6,000.

456. WATER POWER CUSTOM FLOURING MILL IN WRIGHT CO., MINN., plenty of water the year round, building 2½-story and basement, 4 runs of 4 ft. buhrs, 5 reels, 2 20 ft. long, and 3 14 ft. long; 1 smutter, 1 Richmond brush mach., 1 separator, 2 packers, 2 Standard purifiers, No. 2 power corn sheller, 2 Kendelburger water wheels 35 in., 1 J. Bordin wheel 30 in., good house 16x16, cooper shop and warehouse, about 3 acres of land in nice town, 600, on advantageous terms.

454. STEAM GRIST AND MERCHANT MILL IN FRANKLIN CO., MO., frame 30x40, 3-story and stone basement, 2 buhrs, 3½ ft. each, one wheat the other corn, 1 regrinder, No. 1 Eureka smutter, 3 new reels, circular bolts, boiler 24 ft. long 42 in. diameter, 2 flues, engine cylinder 12x20, all in first rate order, 20 to 25 acres of land, 2-story frame house, cistern and good out buildings, all at a low price and on very easy terms of payment.

453. STEAM FLOURING MILL IN OHIO, NEAR CINCINNATI, on C. & E. R. R., town 1,000, no other mill in or near the town, with 2½ acres of land, good four room dwelling, summer kitchen, cistern and out buildings, mill of frame used in part for milling and part for chair factory, which is rented for $1 per day, mill proper 30x40, 3-story and basement, factory 40x48, 2½-story; engine in mill basement, cylinder 10x24, 3 runs of buhrs, 1 4-ft and 1 3½ ft. wheat, 1 30-in. on corn, 3 reel bolting chest new. corn sheller, engine for factory, cylinder 8x16, two large boilers 24 ft. by 36 in., set in solid masonry, substantial brick stack, chair making and other machinery all in good order and worth $10,000, will be sold for $6,000.

452. WATER POWER FLOURING MILL, NEAR NORFOLK, VA., owing to death of its former owner and operator, to close the estate is offered at a price that should find a ready buyer; brick building 44x48, 2½-story and basement, 3 runs of 4 ft. buhrs, with ample water power, convenient shipping facilities either by R. R. or by water, building alone worth more money than price asked for the mill, $6,000.

451. FLOURING MILL IN EASTON, O., heavy frame 36x36, 2½-story and basement, with metal roof, 3 runs of buhrs, 1 4 ft. wheat, 4 ft. corn, 1 20-in. middlings, scalping reel for wheat meal, 3 bolting reels 20 ft. long with double conveyors, 1 reel 18 ft. long for middlings scalper, 1 purifier with fan attached, circular reel, flour packer for bbls. and sacks, separator and scourer, large corn sheller, engine 60 H. P., tubular boiler, with 44 1-3 in. flues, engine room 20x28, force pump, syphon and inspirator, heavy iron stack, wheat heater, large scales, will sell whole or half interest.

449. STEAM FLOURING MILL IN LAFAYETTE CO., MO., 2-story frame on stone foundation, 22x56 with an ell 22x33, 2 runs of buhrs, Eureka smutter, Garden City purifier No. 3, 2 reels, 6 stands of elevators, grain bins, stock hoppers, &c., engine cylinder 12x24, boiler 14 ft. by 50 in., 38 4-in. flues, new 3 years ago, on R. R., block of land 160x200, grain warehouse 22x46 on block 200x200, dwelling house and other out buildings, with 23 acres of land, one of the finest wheat counties in the state and will be sold at a price that will enable a competent man to make money.

446. STEAM FLOURING MILL IN MARION CO., IOWA, near Pleasantville, mill 30x30, 2-story, 40 H. P. engine, boiler 24 ft. long, iron stack, fuel very low, 3 runs of buhrs, bolting reel, 19 ft. long 44 in. diameter, with 3 conveyors, small reel for middlings, all the machinery new, 14 acres of land and nice dwelling in first rate section, all for $3,500.

443. WATER POWER FLOURING MILL, RUSSELL CO., KANSAS, building 20x40, 2 story frame, 3 runs of buhrs, 1 on wheat, 1 corn and 1 on middlings, Eureka smutter, 2 reels, purifier, &c., mill on solid rock, 30 ft. above river, good solid dam, flume through solid rock, 44 in. Little Giant water wheel, no other water mill near, good wheat county, 335 acres of land, 50 under cultivation, dwelling house 24x28 ft., 1-story, 4 rooms, small house for miller, owner has not sufficient capital and will sell on liberal terms and long time.

442. STEAM AND WATER POWER FLOURING MILL IN COWLEY CO., KANSAS, on Walnut river, abundance of water 10 months in the year, main building 36x44, with addition 12x44, granary 20x50, engine house stone building, 2-story with basement and attic, 5 water wheels, 1 for each buhr and 1 for other machinery, 2 runs of 4 ft. buhrs on wheat, 1 4 ft. on corn, 1 20 in. on middlings, 2 purifiers, 1 Smith, 1 Keystone, Barnard & Leas separator, 1 No. 2½ Victor brush, 1 No. 4 corn sheller, large Victor scale, 3 platform scales, Eureka flour packer, 4 20 and 1 22 ft. reels, stone dam and flume, engine 16x32, boiler 22 ft. by 52 in.; on R. R., town 2,000. Offered low and on favorable terms.

435. FLOURING MILL IN DICKINSON CO., KANSAS, that on account of failing health of owner is offered extremely low, frame building 30x45, 2½-story and basement, 4 runs of buhrs, two 3½ ft. on wheat, one 30 in. corn, one 20 in. middlings, 4 20 ft. reels, 1 No. 2 Smith purifier, 1 Barnard & Lea's separator, Eureka smutter, Barnard & Leas flour packer; corn meal bolt, capacity 75 bbls.; boiler and engine house 30x30 frame, coal house attached, capacity 3 to 4 cars, 40 H. P. Atlas engine, good order, boiler 14 ft. by 48 in. diameter 40 3½-in. flues, town 3,000 on R. R. side track, best wheat county in state, well worth investigating.

431. STEAM FLOURING MILL IN ILL., near the confluence of the Mississippi and Illinois rivers; stone building 40x50, 3½ story with iron roof, engine and boiler house separate, boiler 18 ft. long by 4 ft. in diameter, 48 3-in. flues; engine 13x24, 3 old stock French buhrs, one 3½ ft., two 4 ft., each driven by belts, 9 pairs of Stevens rolls recently added, 8 bolts 20 ft. long, double conveyors, one centrifugal bolt, 3 purifiers, 2 Garden City, one Silver Creek, 2 grain cleaners. All machinery substantially new, splendid location on river and R. R. Owing to sickness this property is offered for very much less than its value.

427. BRICK STEAM FLOURING MILL IN MACOUPIN CO., ILL., with 2-story warehouse, 2 barns, small dwelling, 4 acres of land with lots for stock; mill about 44 feet square, engine room with good engine and two boilers, 4 runs of buhrs, purifiers and such machinery as is necessary to make highest grade of flour. This property will be sold very low, or exchanged for other property that is desirable.

J. M. MOORE & CO., 213 North 8th Street, St. Louis, Mo.

for notice. During the past year two mills have left the ranks owing to financial embarrassment; namely, the Empire and Union Steam. All of our mills, with one exception, are now using the roller process and a careful computation places the improvement in grades at about 25 per cent. No disaster of any great extent has taken place among them during the year and on this point they have been very fortunate. All the mills being now in perfect working order, it can be safely stated that never in the history of St. Louis have her milling interests been in better shape and with a brighter future before them.

MILLING IN MILWAUKEE IN 1883.

BY OUR REGULAR CORRESPONDENT.

The close proximity of the end of the year, and the fact that most of the mills are idle this week, renders it possible to give a *résumé* of the year's work at this time. Below find a statement of our several mills' operations for the year, together with additions and improvements, also a list of the head operatives of the several mills:

The Phœnix mill, operated by E. Sanderson & Co., has a daily capacity of 1,000 barrels. It is an exclusive roller mill. Their trade is mostly export, their product being known all over Great Britain. The past year has brought improvements in the way of additional rolls and centrifugals, and the compounding of their Harris-Corliss engine with a Reynolds-Corliss cylinder and valve gear. The purchasing of the wheat, and mechanical superintendency of the mill is in the hands of Howard Sanderson. William Sanderson has charge of the finances and Edward Sanderson is the general overseer. The mill is in charge of Herman Freischmidt as head miller, and the steam department is under John B. Cromwell. The output of the Phœnix for the past twelve months will foot up to 250,000 bbls. of flour.

Our well known miller, J. B. A. Kern, of the Eagle mill, has spent considerable of the past year in overhauling and perfecting his mill according to the most improved methods for the cheap handling of his product. He has now a mammoth milling concern, including storage capacity for fifty thousand barrels of flour, an elevator capable of holding 100,000 bus. of wheat, and a complete mill of 1,500 barrels capacity,—all three compact in one building. His system is a combination of rolls and millstones, the stones only being used on perfectly clean middlings. As before stated, the year being mostly occupied in remodeling, his output has not been as large as usual, but 125,000 barrels have been disposed of. E. J. Morgan is head miller, and Justus Valet, engineer.

The Empire mill is operated by S. H. Seamans & Co., Mr. Seamans being the worthy secretary of the Millers' National Association, through which connection he is probably as well known as any miller in the country. Like a good many of our Milwaukee mills, this mill has not been pushed to its utmost this year, owing to the unsatisfactory prices ruling, and the output for the year is not over 35,000 barrels. The mill is a combination of rolls and millstones and can produce 400 barrels per day. Levi Hicks has acted as head miller and Joseph Lee, as engineer.

The Daisy has had a fair year's run, making 80,000 bbls. for the year. On July 1, the mill was shut down for two months, and the capacity increased from 250 to 450 bbls. per day. This makes the mill very compact, the building being small, and enables the production to be made with very little expense. This mill is certainly as complete a piece of workmanship as can be found, embracing all the improved machinery of merit, and it would pay millers well in passing through our city to go through it. It is run exclusively on the roller system, of the Gray manufacture. L. R. Hurd is the business manager; John Forrest, head miller; and Abraham Ellsworth, head engineer. This mill caters mostly to an export trade and stands well with Great Britain importers, where its brands are used as standards.

C. A. Manegold & Co., operating the Reliance mill, are an old and well established milling concern. Although their capacity is fully four hundred barrels per day, they have worked easily the past year, and their output will foot up to 50,000 bbls. Lute Eckel is head miller and Steve Esser, engineer. This mill uses rolls almost exclusively, but uses one or two runs of stone. Improvements the past year have included the Prinz dust collectors and centrifugal reels.

The Gem, owned and operated by F. H. Magdeburg & Co., has run the past year almost exclusively for the Chicago trade, and has made 40,000 bbls. of flour. Julius Zahn is head miller, and Sam Smith, engineer.

The Jupiter, operated by Stern & Wohlrab, after making some changes early in the year, has run very steadily, by so doing producing 65,000 barrels of flour for the year. Mr. Wohlrab, of this firm, was formerly head miller for Mr. Kern's Hungarian mill, but formed connections with B. Stern last January, for carrying on the milling business. Andrew Cunningham is engineer.

The City mill is now operated by C. M. Paine, and produces rye flour exclusively. Its capacity is 100 barrels per day, and it has made a total of 20,000 barrels the past year. Ed. Russell is engineer.

The Merrimac Mill Co., with a daily capacity of 400 barrels per day, did not run very steadily previous to the partial destruction of their mill by fire, the production being 40,000 barrels. The mill is being rebuilt and will be ready to run about Feb. 1.

The Northwestern mill, which was operated by Schlessinger & Daggett, ceased operations about Aug. 1, after producing 100,000 barrels of flour since Jan. 1. The mill is now idle, but will probably be running again soon.

Summed up, the production of flour for the past year by our several mills, is as follows:

Firm.	Mill.	Barrels.
E. Sanderson & Co	Phœnix	250,000
J. B. A. Kern & Son	Eagle	125,000
Schlessinger & Daggett	Northwestern	100,000
L. R. Hurd (Manager)	Daisy	80,000
Stern & Wohlrab	Jupiter	65,000
C. A. Manegold & Co	Reliance	50,000
F. H. Magdeburg & Co	Gem	40,000
Nunnemacher & Co	Star	40,000
S. H. Seamans & Co	Empire	35,000
Wm. Gerlach & Co	Centennial	25,000
Total production for 1883		810,000
Total production for 1882		1,346,509
Difference in favor of 1882		536,509

A NEW GAS OVEN.

The statement that bread baked in a wood heated oven tastes sweeter than any other, so often reiterated by the trade, and confirmed by a number of those who have experienced the difference of the baking by wood and coal, led Mr. Booer to inquire carefully into the question whether heat produced by wood, coal, or gas varied in its effects at the same temperature; and also whether the heat produced inside an oven differed frem the heat produced outside, which came through the tiles or iron of which the oven was composed. To arrive at a proper conclusion on these important points it was necessary to make a careful inquiry into the different methods of making the bread, and as to the different kinds of flour, yeast, etc., used in the mixing of the ferment, setting the sponge, and the working of the dough; and the results of a careful investigation may be summarized by putting the facts in order of merit for internal heating, viz., gas, wood, coal. Also a number of experiments go to prove that the difference between the quality of the heat produced by internal heating differs from the heat produced by external heating as much as a sharp knife differs from a blunt one, the sharp knife being the heat internally produced, the blunt knife the heat externally produced.

For the purpose of ascertaining whether any difference existed chemically between the bread baked in heat produced by gas (as applied to the oven by this invention) and the heat produced by coal in the usual way, it was decided to have two loaves analyzed at a chemical laboratory. The two loaves for this purpose were made from the same dough, were baked at the same time, and were in the respective ovens 45 minutes in each case, both the ovens being full of bread. When drawn they were marked No. 1 and No. 2 respectively; but no information was given as to which method of baking had been adopted. The loaves were placed in the hands of the professor of chemistry in one of the largest hospitals of London, and the result of his analysis proves No. 1 (the gas oven) loaf, purer and more fit for food than No. 2 (the coal oven) loaf. The first oven to which this invention was applied is still in daily use for baking bread only. Two and sometimes three batches a day are turned out of this oven; and the baker has had no difficulty in heating the oven to meet his requirements. The second oven is being daily used for baking bread and small goods, and this has been found to answer all the requirements of a full-priced baker and a fancy trade. The third one, now working daily in one of the best shops in the Strand, is used at night for baking Vienna bread, and during the day by biscuit-bakers and pastrycooks, and is found to meet all the varied requirements of this establishment. This oven is full-sized, and the consumption of gas is five feet per minute, and in ten minutes a good flash heat is obtained with 50 feet of gas, costing a penny three farthings. In 20 minutes the pyrometer is raised from 400° to 700°, that is to say, 100 feet of gas, costing, at 3s. per 1,000, threepence-halfpenny, raises the temperature from its minimum to a good baking heat. It must also be noted that directly the gas is turned off, the oven can be used, no laying down or scuffling being required; also it has been found that for the baking of captains and other biscuits the process of baking can go on with a small amount of gas burning, thus ensuring a uniform bloom upon the work and greatly improving the appearance of the goods. It will thus be seen that the baker may soon settle the smoke difficulty, and with great advantage to himself, says the London *Baker and Confectioner*.

"We have now laid sufficient data before our readers, and they must judge for themselves. Like all inventions, the gas oven has passed through failure and seems now on a fair road for success. Though there can be no doubt that perfection is not yet achieved, a good, workable, clean, and valuable oven has been added to the various systems now in vogue, and the baker must be congratulated that his trade is receiving such universal attention as is everywhere displayed, and that scientific men are busily at work assisting him to come out of his land of darkness into the region of light, and stand on an equality with the most efficient trades of the nineteenth century."

The last ten years of milling history present a busy, unsettled record. It has left its mark on the mills of to-day. The transition from one system to another brought about first by the purifier, followed by complications of bolting, separations and grinding, and next the introduction of the system of gradual reduction with its additions and changes, has served to tax the energy and ingenuity of the people of that time. Many mills have gone through this period and followed its fluctuations, where the building and surroundings were intended only for the most primitive methods of earlier years; hence the patched, built-onto look of many exteriors and the jumbled, crowded uncomfortable mixture of the interior. Many mills which have been built in recent years have an unsettled look and an unsystematic air, which was brought about by the consciousness that what was put in one year would probably have to be taken out the next. Less attention was paid to details than to principles, but now the matter of principle appearing to be fixed, there is an inducement for better arrangement and closer attention to details. There is now more time for quiet study and the working out of many of the nicer, finer points of milling which have never been touched. The unsettled state of affairs having been fatal to quiet, systematic study, there has been no chance for milling literature of the higher order. There are no milling works published in the English language worthy of serious consideration. The present time and condition of things are favorable to an interchange of thought and a development of a worthy milling literature.

The stock of breadstuffs in Great Britain is equal to 4,000,000 bus. greater than ever before known, and 9,000,000 bus. larger than at this time last year. The stock in the United States is the largest ever held at any one time, and promises to be still greater when the next report comes in.

THE

North Star Iron Works Co.

BUILDERS OF

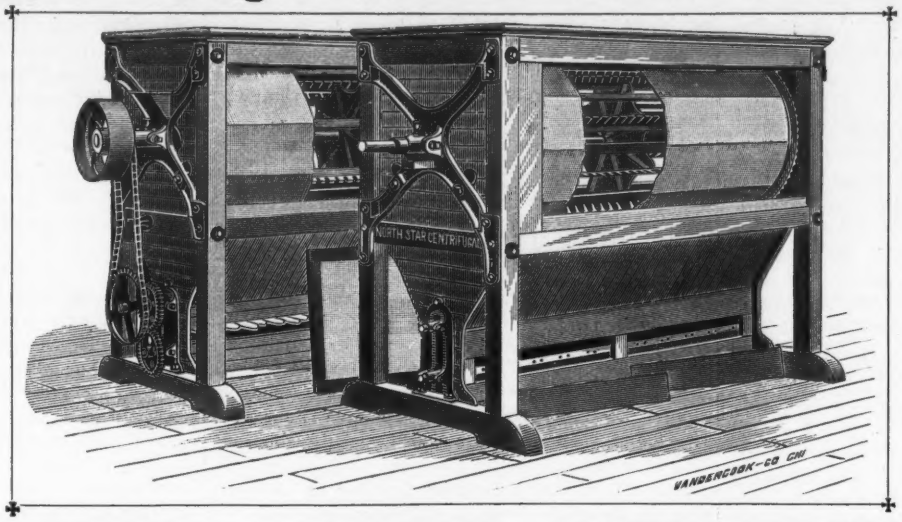
Flour, Saw Mill, Engines, Boilers and General Machinery.

The Strongest,

BEST-BUILT AND

Most Durable

Centrifugal in the World.



GUARANTEED

TO HAVE

More Capacity

THAN ANY OTHER.

THE NORTH STAR CENTRIFUGAL,

HENRY SECK, Patentee.

The Best and Most Complete Centrifugal!

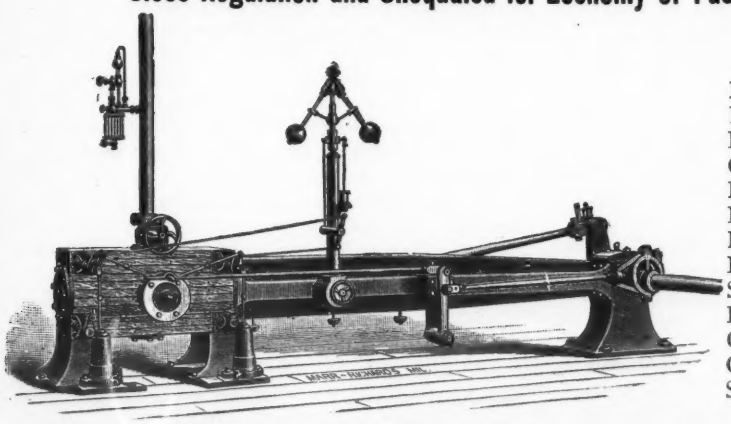
It gives excellent satisfaction wherever it is in use. The following firms are a few of those using this Machine, to whom we refer:

WASHBURN A AND C MILLS; WASHBURN, CROSBY & CO.; J. A. CHRISTIAN & CO.;
SIDLE FLETCHER HOLMES CO.; WASHBURN MILL CO.; PETTIT MILL;
ZENITH MILL; LEONARD DAY & CO.; PALISADE MILL;
CROSBY ROLLER MILL CO., Topeka, Kansas, MYRICK & MELHORN, Waterville, Minn.,
HERMAN AHLBRECHT, Smith Lake, Minn.; F. LINDEKUGEL, Arlington, Minn.;
L. PLANT, Faribault, Minn.

BEWARE OF INFRINGEMENTS. *All points fully covered by strong patents in this country and Europe. In the latter country it is the oldest and most successful Machine of the kind in use.*

THE NORTH STAR CORLISS ENGINE.

Close Regulation and Unequaled for Economy of Fuel and Steam. Highest Efficiency and Superior Construction.



REFERENCES:

MERRIMAN, BARROWS & CO., Minneapolis, Minn., Planing Mill.
FRAZER & SHEPARD, - - " " " "
PILLSBURY & HULBERT ELEVATOR CO., Minneapolis Elevator.
GEO. A. BRACKETT, - - - - - Minneapolis.
MYRICK & MELHORN, - Waterville, Minn., Flour Mill.
FULLER & CAMPBELL, - - Alexandria, " "
HENRY OSWALD, - - - Minneapolis, " "
DUNWOODY & CORSON, - New Richland, Minn., "
SYME & DEMOTT, - - - Long Lake, Minn., "
LAGRANGE MILL CO., - - Red Wing, " "
CAPT. C. MAY, - - - Casselton, Dak., "
CEDARBURG WOOLEN MILLS, Cedarburg, Wis., Woolen Mills.
ST. PAUL HARVESTER WORKS, St. Paul, Minn., Harv. Wk's.

STATIONARY AND MARINE BOILERS, TANKS, SMOKE STACKS AND SHEET IRON WORK OF ALL DESCRIPTIONS.

FOR PARTICULARS AND PRICES, ADDRESS THE MANUFACTURERS,

NORTH STAR IRON WORKS CO., - MINNEAPOLIS, MINN.

AMONG OUR ADVERTISERS.

WE ARE very certain that our readers (and for this issue at least, we are quite sure that they are very numerous) will agree with us, when we say that they have never before received such an attractive and readable trade paper as the Holiday Edition of the NORTHWESTERN MILLER. "Hitherto herebefore" (to quote the sweet singer of Michigan) it has been regarded the proper thing for trade publications to feed their readers the same mental food the year round. Iron men, for instance, have iron and iron only talked to them summer and winter the year round; millers have been milled to death, until readers of trade papers have been wont to seek in their trade journals only reading matter of the technical kind, and relating solely and exclusively to their business. It is a well known and much commented on fact that Americans devote too much time to business and have too few holidays, and they are urged for the sake of their own and coming generations to go a little slower. We do not suppose, to illustrate this point, that any miller's wife ever read a milling paper; neither do we imagine that an overworked miller, weary with the toils and exactions of a hard day's work, has turned with a sigh of relief to the perusal of his particular favorite in the line of milling publications.

In this issue we have endeavored to give our readers something a little out of the regular line—an appetizing dessert, as it were, which, in honor of the season, the NORTHWESTERN MILLER offers to its regular boarders (a large and healthy tablefull, by the way) and to a large number of outside guests besides. Of course, everyone can see that this extra dish has cost us a very considerable sum of money, and it is just here that we want to say to our readers that without the coöperation of the advertisers herein found we could not have made it. They have cordially endorsed the idea, and have backed up their opinions in a very substantial manner. We hope every reader of this issue will read carefully the advertisements in this number. They represent the best firms in the trade, and there is not a stereopyed, commonplace advertisement in the lot. Our readers will recognize many old friends in new garb, and some new ones who make their maiden speeches from the NORTHWESTERN MILLER'S platform in this issue. It will pay our readers to consider the claims of these advertisers. They are put forth in clean, attractive shape, and they show conclusively what is being accomplished by pluck and energy in this trade. Machines of almost every kind in use in milling are herein offered for sale, and flour which has been made perfect by their use is placed before the buying public herein; for we have prepared an issue the interest whereof is not restricted to millers alone, but will extend to many other classes.

WILLFORD & NORTHWAY,

of Minneapolis, appear next to the cover. Constant readers of the NORTHWESTERN MILLER will recognize in this advertisement the "fine Italian hand" of Ben O'Neill, author of "Old Socks," "Widow Miller" and other popular lyrics. Then the

MILWAUKEE DUST COLLECTOR

draws aside the heavy brown curtains which ornament its page and tells our readers about its merits and uses, and next to it comes the

COCKLE SEPARATOR MFG. CO.,

also of Milwaukee, speaking in language plain of its machine and its worth. The

L. B. FIECHTER MFG. CO.,

Minneapolis, picturesquely presents its fir centrifugal reel and tells its own story, while on the next page the great house of

EDW. P. ALLIS & CO.,

Milwaukee, twines the holly round its product. The

JNO. T. NOYE MFG. CO.,

of Buffalo, in their handsomely displayed advertisement, talk to good advantage about the Stevens rolls and the Rounds sectional roller mill. The

O. E. BROWN MFG. CO.,

Grand Rapids, Mich., are brief and to the point in their remarks on the Rickerson roll.

THE STILWELL & BIERCE MFG. CO.,

Dayton, O., have written a little Christmas story which will be read with great interest.

STOUT, MILLS & TEMPLE,

another great Dayton establishment, have an extremely striking advertisement which will not be overlooked.

THE DOWNTON MFG. CO.

shouts from St. Louis and mentions some notable facts.

THE LA DU-KING MFG. CO.,

Rochester, Minn., fills a page with testimonials, and a very good way it is to induce trade.

J. T. WALTER,

Easton, Pa., contributes a chapter from his work.

THE PRAY MFG. CO.,

Minneapolis, also reels off a good story. The

NORTH STAR IRON WORKS,

Minneapolis, (readers will notice that Minneapolis manufacturers have not been slow in coming forward this Christmas) occupy a page with their words to the wise. The

NORDYKE & MARMON CO.,

Indianapolis,—an old, well known and well patronized firm—take a full page in which to speak, and tell us besides that they like the idea of a Christmas number and hope we will succeed in it.

THE GEO. T. SMITH MIDDLINGS PURIFIER CO.,

Jackson, Mich., come before our readers in a double page illustration of their mammoth works, which is a complete and faithful representation of their immense establishment and will show our readers how much this company has done to produce their machines in the excellent shape now offered.

Millers or others wanting to purchase milling property will find food for thought in the advertisement of

J. M. MOORE & CO., ST. LOUIS.

The manufacturer of mill picks in our great indoor and permanent trades procession is represented by

JOHN C. HIGGINS,

of Chicago, and the bag business is shown up by

BEMIS, BRO. & CO.,

the extensive St. Louis and Minneapolis manufacturers, who again permit their highly trained and intelligent cat to emanate from their home made bag.

Likewise the

MINNEAPOLIS BAG CO.

hands in a Christmas card for the trade. By the way, our old friend Bullard manages this institution.

JAMES LEFFEL & CO.,

Springfield, O., speak about their turbine in calm and dignified terms.

JNO. A. HAFNER,

Pittsburg, takes some space in which to say his say.

THE AITCHISON PERFORATED METAL CO.,

of Chicago, display a headline which catches every eye, and underneath it they tell the reading miller what they can do for him.

THORNBURG & GLESSNER,

Chicago, speak up from their new quarters, cheerful, prompt and business like as usual.

B. F. GUMP,

another Chicagoan, tells millers what they can find at his place, and any miller who goes there and don't find what he wants, will be entitled to a cigar (from B. F. G.'s private box.)

C. KAESTNER & CO.,

likewise of Chicago, compare the past with the present, much to the advantage of the latter.

R. A. DANDLIKER,

(still another voice from the Garden City) advocates his bolting cloth.

Bucyrus, O., is heard from in the advertisements of

M. DEAL & CO. AND HORACE DEAL.

THE SHULTZ BELTING CO.,

St. Louis, give some timely words on belting.

THE VAN SLYKE MILL BOLTING CO.,

Chicago, tell about their new bolt.

W. J. CLARK & CO.,

Salem, O., adorn a quarter page with their elevator buckets.

THE CASE MFG. CO.,

Columbus, O., rise to remark on subjects in which they and our readers are mutually interested.

MUNSON BROS.,

Utica, N. Y., show the results of their exhibit in Louisville in very attractive form.

HOWES & EWELL,

Silver Creek, N. Y., whose names are very familiar to the trade are correctly represented.

THE LIMA MILL FURNISHING CO.,

Lima, Ohio, talk about bolting machines, in a full page. Herein also are presented their other specialties and what they claim for them.

URA H. PALMER,

Tiffin, O., tells every mechanic and working man what he should have to make him really happy.

Our page of Christmas cards consists largely of all our leading grain and commission men, as well as Mayo & Collins, millfurnishers, and Shatto & Dennis, engine men.

Among the flour mills here are shown advertisements of all the leading Minneapolis mills, and at St. Louis our correspondent talks about

D. L. WING & CO.'S

Planet mill, and an amusing amateur puzzles away about

MR. CRANGLE'S

Anchor mill. Read

S. C. BUCK,

Minneapolis, on conveyor flights, short and to the point.

Among other and lesser advertisers, but not necessarily smaller, see McAlister, Chase & Co., Minneapolis; W. H. Fruen, Minneapolis; J. A. Gerhart, Easton, Pa.; Ill. Type Foundry Co., Chicago; Hall & Dann Barrel Co., Minnneapolis; D. L. Wellman, Frazee City, Minn.

THE KNICKERBOCKER CO.,

Jackson, Mich., tell about the worth and workings of the Morse elevator bolt, a new and attractive machine.

S. HUGHES MFG. CO.,

Hamilton, O., discourse on bran dusters.

Then turn over to the last page of all and see the very appropriate and taking advertisement of the Link Belt Machinery Co., drawn by their artist, T. S. Miller, and never before shown to the public.

THE NORTH STAR IRON WORKS CO.,

speak in plain language about their centrifugal reel, Corliss engine and other necessaries of life.

W. J ABERNETHY & CO.,

of Minneapolis, advertise their celebrated Saskatchewan fife wheat, for seed, giving strong references.

THE REAL VIENNA BREAD.

Viennese bread is celebrated. It may interest you to know something about it. The excellence of the bread is attributed in Vienna to three reasons—the oven, the men and the yeast. I think another may be added, and that is the dry climate. An ounce of yeast (three decagrammes) and as much salt is taken for every gallon (one litre) of milk used for the dough. The yeast is a Viennese specialty, known as the "St. Marxner Presshefe," and its composition is a secret. It keeps two days in summer and a little longer in winter.

The ovens are heated by wood fires lit inside them during four hours; the ashes are then raked out and the oven is carefully wiped with wisps of damp straw. On the vapor thus generated, as well as that produced by the baking of the dough, lies the whole art of the browning and the success of the "semmel."

The farmers of Spain are evidently not only mindful of their own interests, but resolved to do their best to defend those interests. It seems that the present government has evinced a disposition to suspend the existing import duty on cereals, and as a direct consequence there is keen excitement in all the wheat-growing districts of the peninsula. A mass meeting has been held by the Valladolid mercantile club to agitate against any such action, and the farmers of Castile in particular declare that they will be ruined if the duty is removed. This impression decidedly prevails in Catalonia and other extensive districts of Spain.

THE

GEO. T. SMITH

IMPROVED MIDDLINGS PURIFIER

The Geo. T. Smith Purifier was the first successful Sieve Purifier ever used in this or any other country. The demand for it has steadily increased from the day the first machine was started.

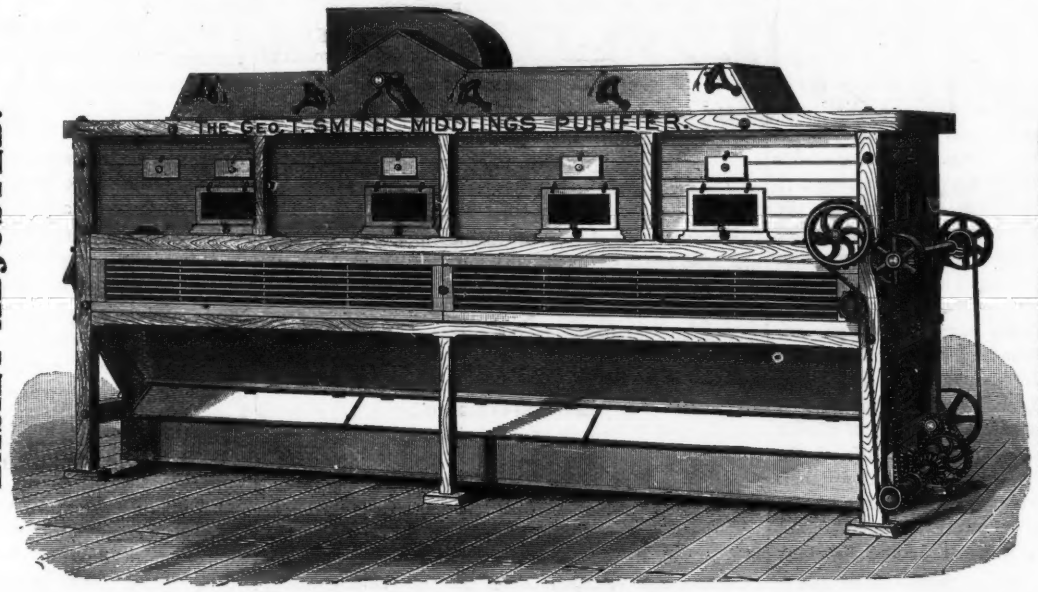
More Than **EIGHT THOUSAND** Are Running

IN THE UNITED STATES ALONE.

EXCLUSIVE FEATURES:

Patent Automatic Brush.
Patent Self-Regulating Feeding Device.
Patent Coil-Spring Eccentric Connection.

EASILY ADJUSTED.



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We are giving greater attention than ever before to the mechanical details and material used in the construction of our machines, having substituted **steel shafting** for iron, and adopted **hard wood** for frames; but, notwithstanding the immense outlay incurred in securing protection under all existing patents, and the cost of constant improvements, **Our Prices Remain Unchanged.**

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A COMMON SENSE BOLTING SYSTEM.

The Improved Morse Elevator Bolt,

MANUFACTURED BY

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THE Round or Hexoganal Reel has been in use for three hundred years or more. Millers and inventors during all that time have been conscious of its defects and have tried to overcome them. But how? Only by changing the size, speed and pitch of the reel, and by placing beaters inside of it which serve to force through the cloth the very impurities which should be eliminated from the finished product. In the Morse Elevator Bolt we have a machine which works on strictly common sense principles, and does its work to perfection. We make this assertion because we know it to be true, as demonstrated by five years of constant trial and experiment. We do not offer a new and untried device to the millers of the United States nor ask them to experiment and aid us in perfecting it. We have waited until we knew that we had a perfect machine and are now ready to talk business with business men. A full description of the new machine will be given in these columns as soon as cuts can be finished. Until then we ask you to write to us and learn what it will do and where it may be seen in operation.

SOME POINTS OF ADVANTAGE OVER COMMON AND CENTRIFUGAL REELS:

1. *It requires less space in proportion to capacity, than any other bolting device whatever.*
2. *It produces purer results than can be made by any other Flour Dresser.*
3. *It effects the best separation of fine middlings from flour and fine middlings from coarse, that can be made.*
4. *It produces flour more even in size of grain than any other style of bolting.*
5. *It will, using the same number of cloth as the first bolting, rebolt flour from the common reel and take out much fine middlings.*
6. *It is simple, durable, requires but little power, and compared with its capacity cheaper than the centrifugal reel.*
7. *It is the best separator of flour from dust-room stuff, tailings, soft roll stuff and other difficult and dirty material, ever devised.*
8. *It produces flour of greater evenness of quality than any other machine. The result of evenness is a more equal absorption of moisture, and consequent equal action in the leaven and a lighter and whiter loaf, and one that will not dry out as quickly as one formed of part middlings or uneven flour. Quick drying out is caused by the coarse particles of flour absorbing the moisture later on in the process of bread making.*
9. *It will work on any material about the mill to better advantage and produce from it more flour and of a better quality than any other bolting device whatever.*

Read what one of the best-known milling firms in the United States says of the Improved Morse Elevator Bolt, after three years' use :

DIXON, ILLINOIS, Sept. 10, 1883.

C. R. KNICKERBOCKER, ESQ., Jackson, Michigan;

Dear Sir :—We learned a few days since that you had bought out the Morse Elevator Bolt Co., and had secured control of the Bolt and would continue the manufacture of them on a large scale at Jackson. We congratulate you upon the ownership of so valuable a machine. We have used three of them nearly three years and consider them the most *perfect bolting apparatus extant*, and we think it wont be long before they will to a great extent supersede the old bolting reels, as well as the more modern centrifugals. If we were building a mill now, we should use them largely in place of the old bolting chest and wholly in place of centrifugals. You can set them in any place you can reach with a belt and we don't know of any stock they cannot handle to perfection. We have set out all of our centrifugals but one and put these bolts in their place and when you get to manufacturing we will order one to take its place as well as some to take the place of an old style bolting chest (4 reel). Our experience is that you can handle with the Elevator Bolt material that it is impossible to handle on a centrifugal with any satisfaction ; it has more capacity and takes less power than any centrifugal we have had any experience with.

You have made no mistake in taking hold of this Bolt and the millers will make none in adopting it. It has merits which will be appreciated. We write you thus frankly because we believe most thoroughly in the machine, and thinking it would do you good to know our opinion of it. Wishing you success, we are

Very truly yours,

BECKER & UNDERWOOD.

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Send for our 16-page pamphlet giving the full history of the wheat. W. J. ABERNETHY & CO., originators and proprietors, No. 4 Washington Avenue South, Minneapolis.

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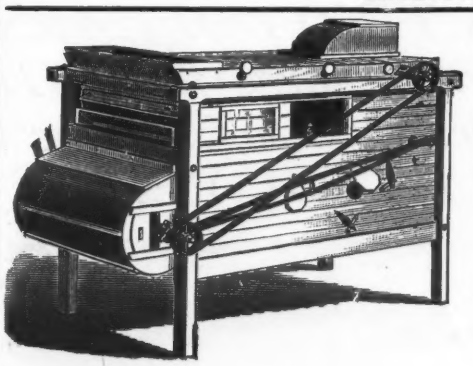

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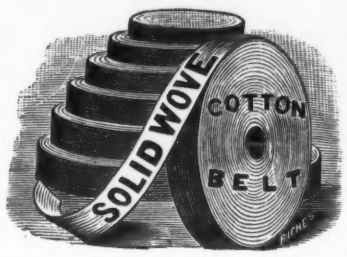

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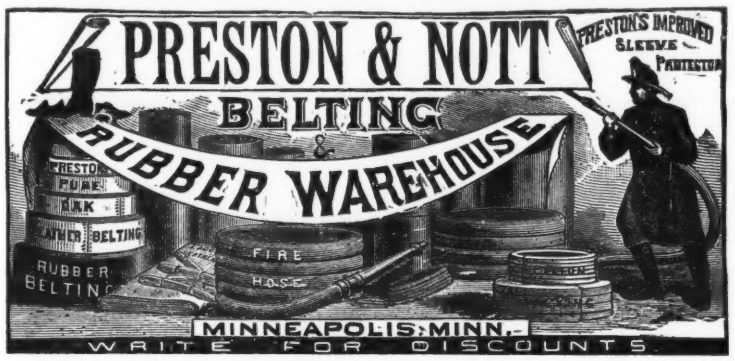

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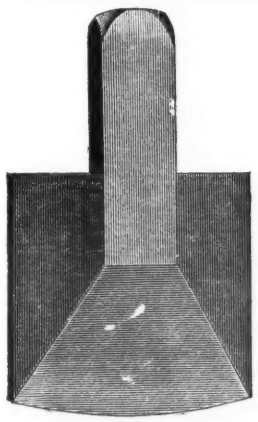

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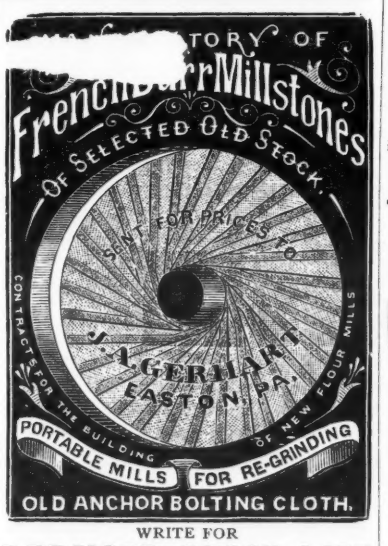

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